DOCUMENT RESUME

ED 145 849 IR 005 305

AUTHOR	Manning, Brad A.; Buntain, Donna M.
TITLE	A Module for Training Library Researchers.
INSTITUTION	Texas Univ., Austin. Research and Development Center for Teacher Education.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
PUB DATE	76
CONTRACT	NIE-C-74-0087
NOTE	158p.; Several pages are of marginal legibility
EDRS PRICE	MF-$0.83 HC-$8.69 Plus Postage.
DESCRIPTORS	Autoinstructional Aids; Educational Psychology; Independent Study; *Learning Modules; *Library Instruction; Library Research; *Library Skills; *Research Skills

ABSTRACT

This module is designed as a self-paced package to teach persons in educational psychology to conduct literature searches. The module could be easily adapted for use in other academic areas. The systematic method of approaching library research is divided into eight specific research skills: (1) writing an outline, (2) writing notecards, (3) locating references in the library, (4) generating descriptors and hand searching indexes, (5) computerized searches, (6) identifying key sections of books and research articles, (7) processing of research materials, and (8) organizing the literature into categories. Each unit contains a pretest, assessment of pretest, learning activities, posttest, and assessment of posttest. There is also an overall pretest to enable the student to select only those units in which he lacks competency. (Author/JAB)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED145849

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

A MODULE FOR TRAINING LIBRARY RESEARCHERS

Brad A. Manning

and

Donna M. Buntain

The Research and Development Center for Teacher Education
The University of Texas
Austin, Texas
1976

The work presented here has been conducted with the support of The National Institute of Education, Contract No. NIE-C-74-0087.

BEST COPY AVAILABLE

IR005305

PREFACE

This module is designed as a self-paced package to teach persons in educational psychology to conduct literature searches. The module is easily alterable and may be used as a model to build modules for research in other academic areas. The module teaches a task-specific, cost-efficient system for retrieving and organizing information. This system would be useful not only for research centers in the retrieving and processing of information, but for the graduate and undergraduate student wishing to learn how to conduct an extensive literature search. Teachers or students need only modify the "Processing of Materials" section of the module, while research institutions may use the package as is, with minor changes to suit their particular institution.

This procedure of library research was developed at the Research and Development Center for Teacher Education, the Division of Search and Analysis, at the University of Texas at Austin. The authors wish to thank their numerous student employees over the years, whose research experiences have contributed to developing this research procedure. In addition, the authors wish to thank everyone on the Procedures for Adopting Educational Innovations Project, funded by the National Institute of Education, for their critiques and for giving us the time to write this procedure down. In particular, we wish to thank Sue Loucks for her suggestions and criticisms and Donna Debus, Malorie Tolles, and Carol Walton for their suggestions and assistance in writing and organizing the manuscript.

CONTENTS

Page

Prospectus 1

Structure of the Module
Flow Chart

Pre-Assessment of Entire Module 7

Module Activities Schedule

Module Parts

Part 1: Writing an Outline 15
Part 2: Writing Notecards 31
Part 3: Locating References in the Library 53
Part 4: Generating Descriptors and Hand Searching Indexes 67
Part 5: Computerized Searches 83
Part 6: Identifying Key Sections of Books and Research Articles . 97
Part 7: Processing Reference Materials 113
Part 8: Organizing the Literature into Categories 127

Posttest Over Entire Module 151

PROSPECTUS

Introduction

Library research and the organization of information has become a fine art. Today's researcher must become familiar with an array of indexes, journals, books, computer print-outs, and machines of varying degrees of complexity. The information explosion requires that researchers learn to organize information in time- and cost-efficient ways. This module teaches a systematic method of approaching library research. After acquiring the skills and method presented in this module, the researcher will be prepared to conduct library research in any library in any topic area.

Structure of the Module

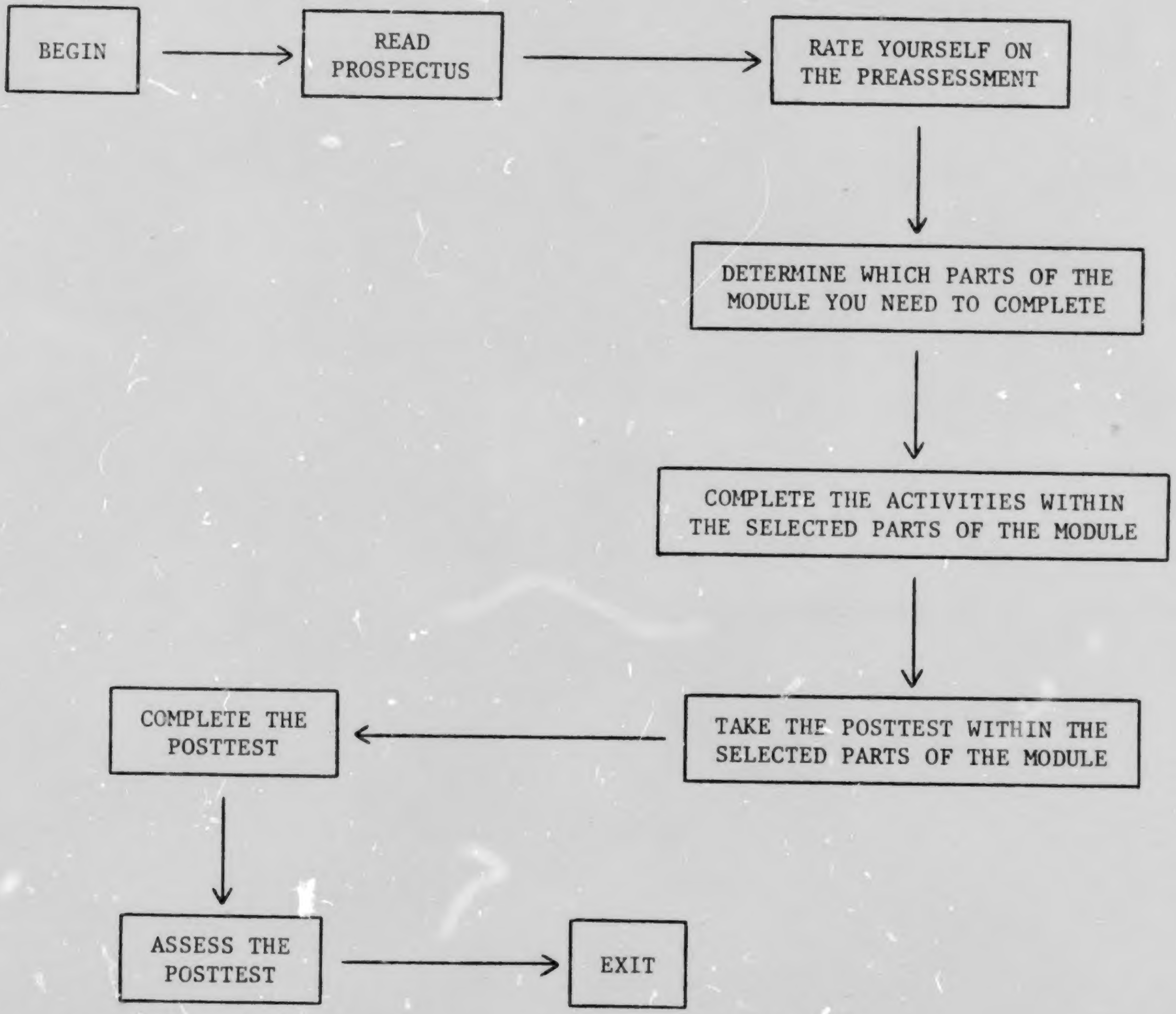
This module is divided into eight parts and a posttest. Each part focuses on a specific skill which the participant must attain in order to complete the terminal objective which is assessed in the posttest. The participant first learns specific research skills, then gradually learns to combine these skills, and finally, conducts a complete literature search, organizing the reference materials according to a given outline. The participants will learn to organize the materials as they are collected, in order to expedite the writing task.

The module focuses on the following terminal objective:

THE PARTICIPANT WILL BE ABLE TO COMPLETE A SEARCH FOR REFERENCES RELATED TO A GIVEN TOPIC, AND ORGANIZE THE REFERENCES ACCORDING TO THE STATED CRITERIA.

Each separate part of the module contains a major objective, sometimes followed by lesser, related objectives. In addition, each section contains a pretest, assessment of pretest, activities, posttest, and assessment of posttest.

Before beginning, complete the overall pretest and module activities schedule, and study the flow chart.


BEGIN
READ PROSPECTUS
RATE YOURSELF ON THE PREASSESSMENT
DETERMINE WHICH PARTS OF THE MODULE YOU NEED TO COMPLETE
COMPLETE THE ACTIVITIES WITHIN THE SELECTED PARTS OF THE MODULE
TAKE THE POSTTEST WITHIN THE SELECTED PARTS OF THE MODULE
COMPLETE THE POSTTEST
ASSESS THE POSTTEST
EXIT

PRE-ASSESSMENT FOR ENTIRE MODULE

Circle the appropriate response to the following questions. If you respond NO to a question, complete the corresponding part of the module as indicated (beginning with the ACTIVITIES section). If you respond YES to a question, you may complete the pretest for that section of the module. Check your answers, and move on to the next part. If you respond UNCERTAIN to a question, complete the PRETEST to the corresponding part of the module in order to determine if you need to complete the activities for that section. After answering all questions in this section, fill in your responses on the chart which follows. This chart is available simply to help you chart your progress through this module.

1. I know how to write an outline (see Part 1).

YES NO UNCERTAIN

2. I know how to write reference notecards in the correct APA format without referring to the APA guidelines (see Part 2).

YES NO UNCERTAIN

3. I know how to search for and locate reference sources in the library (see Part 3).

YES NO UNCERTAIN

4. I know how to select and use descriptors in order to hand search ERIC, Education, and Psychological Abstracts Indexes for references relevant to a given topic (see Part 4).

YES NO UNCERTAIN

5. I know how to use the computer terminal to obtain titles of references which are stored in computer data banks (see Part 5).

YES NO UNCERTAIN

6. I know how to quickly identify key sections of research reports and articles (see Part 6).

YES NO UNCERTAIN

7. I know how to physically process references which are retrieved for a given topic (see Part 7).

YES NO UNCERTAIN

8. I know how to organize the reference materials conceptually and categorically in order to expedite the writing task (see Part 8).

YES NO UNCERTAIN

Module Activities Schedule

PRE-ASSESSMENT QUESTION	MODULE PART	COMPLETE ACTIVITIES, POSTTEST	TAKE PRETEST	NOTES
1	1. Writing an outline Part 1			
2	2. Writing APA notecards Part 2			
3	3. Locating references Part 3			
4	4. Using indexes identifying descriptors Part 4			
5	5. Using the computer terminal Part 5			
6	6. Identifying key sections or reports and articles Part 6			
7	7. Physically processing reference materials Part 7			
8	8. Conceptually organizing references Part 8			

MODULE PARTS

PART 1: WRITING AN OUTLINE

Several types of outlines may be used to organize a search and writing task. Ideas may be organized in one of the following ways: deductively, inductively, cause-and-effect, chronologically, spacially, logically, or comparatively. In addition, an outline may be written as a sentence or topic outline, or a combination of the two. The initial outline serves two functions: to assist you in thinking systematically about a topic, and to help you identify and organize the information you collect. The early working draft of the outline should be flexible and will be continually revised. As a search progresses, you will critically evaluate your outline regularly, checking for inconsistencies, better ways of focusing the topic, relationships between ideas. The final resulting outline can then be used to organize the writing task (see Part 8).

OBJECTIVE 1:

THE PARTICIPANT WILL BE ABLE TO WRITE AN
OUTLINE WHICH MEETS THE SPECIFIED CRITERIA.

1.1 The participant will be able to read abstracts on a given topic and generate words or phrases related to the topic.

1.2 The participant will be able to order a list of words into an outline format, using a deductive patterning (i.e., by selecting the broadest words for the major headings, and placing narrower words under the appropriate broad headings).

1.3 The participant will be able to order a list of words into an outline format using chronological patterning (i.e., by presenting ideas or events in the order in which they occurred).

PRETEST

1. Read the following abstracts and generate five words or phrases which focus on specific variables discussed in the abstracts. The topic focuses on the effects of temperature change on students' learning in the classroom. At this point, do not try to list headings for an outline. Merely identify and list key variables which are discussed in the following abstracts.

Abstract #1

Two physically identical classrooms were used to test if there was any difference in pupil learning between a class with a controlled ideal thermal environment and a class with a controlled deviate thermal environment. Two groups of fifth grade students, matched by intelligence test scores, achievement tests, sex, age, and family background were used as subjects. One group was placed in the classroom with a maintained thermal environment considered ideal. The other group was put in the classroom with a maintained thermal environment that was other than ideal (considered and called deviate). All teaching instruction for both groups was identical in subjects taught, teacher teaching, and time spent in each subject. A weekly achievement score was collected from all students in each selected skill and subject area. The study lasted eight weeks and four days. At the end of this time, the data on the two groups were statistically analyzed. No significant differences in achievement were found between the two groups.

(Hansen, B. P. A study of the effects of room temperature on learning. Dissertation Abstracts International, 1866, 27(2-A), 353-354.

Abstract #2

This study investigated the effects of summer temperature on technical training at a U. S. Navy training center in the mid-south. The study involved two equal groups of 404 men each, who received virtually identical treatment except that one group attended classes in air-conditioned spaces and the other group did not. The latter group utilized exhaust fans. Less than 2% of the subjects knew that they were involved in an experiment. No significant differences were found in achievement between the two groups. The subjects working under the higher temperature conditions thought that their work was impaired. The results of analyses did not demonstrate this to be true. It was concluded that temperatures at least as high as the low 80's (Fahrenheit) do not result in an appreciable decrement in achievement in U. S. Navy technical school courses of a sedentary nature.

(Mayo, G. D. Effects of temperature upon technical training. Journal of Applied Psychology, 1955, 39, 244-246.)

Abstract #3

This is a report of a first pilot study which precedes a series of studies being conducted by the Iowa Center for Research in School Administration and

Lennox Industries, Inc., Marchalltown, Iowa. It is a digest of a thesis by Dr. Charles Peccolo, who served as researcher on the first study. The study aimed at measuring the effects of thermal conditions on the learning process and on learning. The concern was to study the model environment as now established by research and writings and to compare it with a marginal environment. The fourth grade subjects used, were tested in various functions under two contrasting thermal environments which differed in temperature, humidity, and air movement. The first piece of research showed definite benefits for children in a carefully controlled thermal environment. However, school boards and superintendents should not embark on ambitious programs to air condition schools using this research as the sole basis for doing so. This research along with other evidence can give strong support for consideration of thermal conditions in planning schools. This digest includes (1) introduction to problems, (2) development of the thermal concept and a review of the literature, (3) experimental procedures and conditions, (4) analysis of the results, and (5) summary and conclusions. Charts, graphs and tables are included. (ERIC abstract)

(Peccolo, C. The effect of thermal environment on learning. A pilot study. Iowa City, Iowa: Iowa University, Center for Research in School Administration, 1962.)

Abstract #4

This study was an attempt to determine the effect of two thermal conditions on learning and time required to complete tasks. In one classroom, called the model room, a thermal environment was created that was designed to meet the recommended standards for a good learning environment. The second classroom, called the marginal room, was similar to the conditions the students would have had in their regular classroom. Two groups of sixth grade students were matched according to Iowa Tests of Basic Skills scores, Intelligence Quotient, and sex. One group was instructed in the model room, the other in the marginal room. The researcher prepared the instructional materials and supervised their administration in order to eliminate the teacher variable. A routine task, a rote task, and a conceptual task were included. The data from the two groups were analyzed involving the use of analysis of variance. Six main effects were found to be significant out of fifteen effects analyzed. Two significant effects were: (1) students in the model room were found to make fewer errors on the Program Materials Test; and (2) model room students took less time to take the Program Materials Test.

(McCardle, R. O. Thermal environment and learning. Dissertation Abstracts International, 1966, 27(2-A), 356.)

2. Order the following list of phrases into outline format, using a deductive patterning (i.e., select the broadest words for the major headings; place narrower words under the appropriate broad headings). There will be only one major heading. All other headings will be organized under the one major heading (Roman numeral).

what kinds of teaming analysis systems have been developed with respect to verbal interactions in team meetings

analysis of teaming

team meeting analyses

social environment in which teams function

analysis of organization of teaming institutions

interaction patterns of teams within one institution

3. Order the following list of phrases into an outline format, using chronological patterning (i.e., ideas or events are presented in the order in which they occur). There will be only one major heading. All other headings will be organized under the one major heading (Roman numeral).

scientific strides in the early 15th century

indications of pre-Columbus visits to North America by Scandinavian fishermen

further explorations by sea between 1492 and 1622

pre-European settlement in North America (Indians)

names of tribes

settlement of North America

events in Europe leading up to Columbus' landing

locations of Indian tribes

beginnings of the Renaissance

economic considerations in the 1300-1400's

Columbus' landing in North America

ANSWERS TO PRETEST

1. The five phrases or words you have listed should be included among the following list of possible words. You may have listed words that are synonymous with words on this list. If so, rate yourself as having completed the task correctly.

   classroom environments

   effects of temperature

   climate control

   achievement

   learning experiments

   model environments

   ideal thermal environments

   humidity

   thermal environments

   physical environments

   performance

   success factors

   educational experiments

   marginal environments

   air movement

2. Compare your outline to the model provided below. Arabic numbers under a letter may be reversed, and whole sections A and B may be reversed.

   I. Analysis of teaming

      A. Team meeting analyses

         1. how team members evaluate their own team meetings

         2. what kinds of teaming analysis systems have been developed with respect to verbal interactions in team meetings

B. Analysis of organization of teaming institutions

1. social environment in which teams function

2. interaction patterns of teams within one institution

3. Compare your outline to the model provided below. Arabic numbers 1 and 2 under A may be reversed, and Arabic numbers 1 to 3 under C may be reversed.

I. Settlement of North America

A. Pre-European settlement of North America (Indians)

1. names of tribes

2. locations of Indian tribes

B. Indications of pre-Columbus visits to North America by Scandinavian fishermen

C. Events in Europe leading up to Columbus' landing

1. beginnings of the Renaissance

2. economic considerations in the 1300-1400's

3. scientific strides in the early 15th century

D. Columbus' landing in North America

E. Further explorations by sea between 1492 and 1622

ACTIVITIES

If you have failed to complete the pretest correctly, read the next three pages. If you need more information, select appropriate sections to read from the following references sources:

Campbell, W. G., & Ballou, S. V. Form and Style: Theses, reports, term papers. Boston, Massachusetts: Houghton-Mifflin, 1974.

Gatner, E. S. Research and report writing. New York, New York: Barnes & Noble, 1962.

Morse, G. W. Complete guide to organizing and documenting research papers. New York, New York: Fleet Academic Editions, Inc., 1974.

If you need additional practice before completing the posttest, re-work the pretest items.

Writing an Outline

After completing your initial search for general information in the area of your topic, begin constructing your outline by brainstorming ideas or words related to your topic. Randomly list any words or ideas that come to mind. The next step is to arrange these words or phrases in a logical order. Before actually writing your outline, first group phrases or words as they relate to each other. If you have a large number of words or phrases, one way of doing this is to cut out (literally, with scissors) each separate word or phrase, and visually arrange them in a logical order. Several such orders are described below. As you organize your listing of topics, you may need to go back through your information sources (articles, abstracts from the initial search) several times to find very specific pieces of information to fill in your outline. Or, you may find new topics you neglected the first time through.

The most often used patterns for organizing material are as follows:

Deductive pattern or general-to-particular order: main topics consist of generalizations, with subheadings which either supply evidence of the main topic or act to support the generalizations.

Inductive or particular-to-general pattern: usually used to collect information in order to answer a question. For example, a series of headings may gradually build to a final heading which results from the cumulative information included in the earlier headings.

Cause and effect patterning: arranging headings to indicate that certain events lead to resultant outcomes. This form is particularly useful for scientific studies.

Chronological pattern: ideas or events are presented in the order in which they happen. For example, the activities in this module are presented in the sequence in which the activities will be used in an actual search.

Spacial pattern: most often used in describing geographic locations, landscapes.

Logical order: each idea depends on the preceding idea for its understanding.

Comparison and contrast: used to indicate differences in topics being compared.

After determining an order which best suits your topic, you may use either a topic or sentence outline. Topic outlines consist of single words or short phrases; sentence outlines consist of long phrases or sentences and include more substance than topic outlines. A topic outline may become a sentence outline as the research progresses and as the writing task begins. Often the construction of a sentence outline comprises the first step in the writing of the rough draft. Choose the format which is most comfortable for you -- you may even want to use a combination of a topic and sentence outline.

The initial outline serves two functions: to assist you in thinking systematically about a topic, and to help you identify and organize the information you collect. In the first capacity, the outline will help you to clarify your thoughts, identify and define the limits of your topic. Secondly, the outline will break the topic into manageable areas to be searched, and provides a means to organize the material as you collect it (see Part 8). "Not only is outlining a way of thinking systematically about a topic, it is efficient in terms of the time needed to write the paper (Campbell, W. G., & Ballou, S. V., 1974, p. 7)."* Later in this module, you will use the outline as a guide to identify ideas and their relationships, to keep you focused on the subject, and to narrow your search to relevant material.

This early, working draft of the outline should be flexible and will be continually revised. The final outline results from changes made in the initial outline. These changes may be both additions and deletions, depending on the information which you have uncovered. Always view the outline as a flexible tool for your use; you are not a slave to an outline. Using an outline correctly can save you hours of time in writing and thinking through your topic. Critically evaluate your outline regularly, checking for inconsistencies, better ways of focusing the topic, relationships between ideas. The final resulting outline can then be used to organize the writing task. Quite often, the major headings can be used as lead-in sentences, while information you have collected can be filled in the appropriate places (as explained in the POSTTEST for the entire module). When you begin your final writing task, revisions in the outline should be minor. When you are finished with the rough draft of your paper, always go back and compare the contents of the paper and outline, to insure continuity in the final paper.

---

*Campbell, W. G., & Ballou, S. V. Form and style: Theses, reports, term papers. Boston, Massachusetts: Houghton-Mifflin, 1974.

POSTTEST

Order the following listing of words into outline format, using logical and deductive patterning. That is, ideas should follow one another logically (later ideas should build on earlier ideas), and narrower ideas should be grouped under broader topics.

the development of traditional preservice and inservice teacher training programs

historical developments in teacher education in Great Britain

a description of teacher centers as they currently exist

historical and educational developments which have led to the teacher center movement

description of British teacher centers

a discussion concerning successes and failures of teacher center programs

current issues in preservice and inservice teacher training programs

historical developments

comparison of United States and British teacher centers

definition of teacher centers

educational developments

historical developments in teacher education in the United States

the teacher center alternative

description of United States teacher centers (includes programs which are not titled "teacher centers" but which share many of the same aims and methods)

ANSWERS TO POSTTEST

Compare your outline to the model provided below. Only arabic numbers 1 and 2 under IA and arabic numbers 1 and 2 under IIB may be reversed.

I. Historical and educational developments which have led to the teacher center movement

  A. Historical developments

    1. historical developments in teacher education in Great Britain

    2. historical developments in teacher education in the United States

  B. Educational developments

    1. the development of traditional preservice and inservice teacher training programs

    2. current issues in preservice and inservice teacher training programs

II. The teacher center alternative

  A. Definition of teacher centers

  B. A description of teacher centers as they currently exist

    1. description of British teacher centers

    2. description of United States teacher centers (includes programs which are not titled "teacher centers" but which share many of the same aims and methods)

    3. comparison of United States and British teacher centers

  C. A discussion concerning successes and failures of teacher center programs

DISCUSSION OF POSTTEST ANSWERS

In a logical outline format, each idea must build on previous ideas. In order to discuss the teacher center alternative, there must first be a discussion of the context which has led up to the teacher center concept. Therefore, the first Roman numeral must be related to historical and educational developments which define the context and background of the teacher center discussion. The historical context precedes the educational context because the wording of topic I requires that the historical developments be listed first. Roman numeral I is then organized deductively. That is, the Roman numeral is the broadest topic, A and B are narrower topics, and Arabic numbers 1 and 2 are the most specific topics that fall under these headings.

Under Roman numeral II, A must come first, since it is definitive. B and C cannot proceed unless teacher centers are first defined (A).

PART 2: WRITING NOTECARDS

As references are located pertaining to a given topic, strict documentation of references must be maintained. By learning the American Psychological Association style for writing references, you can record the needed information as you conduct the search, rather than searching later for information you neglected to write down. As references are xeroxed, or as you take notes on references, simply jot down the information you will need to write the APA notecard on the top of the first page of the xeroxed copy or your notes. Then, clip all pages pertaining to that reference together. After you have collected all references on the topic, write up notecards for each reference and clip the card to the first page of the reference materials. References can then be alphabetized and a reference list typed directly from the cards. This will be discussed in more detail in Part 7 of this package.

In order to do all of this quickly, memorize the APA guidelines presented in the next few pages, if you have not already done so.

OBJECTIVE 2:

> THE PARTICIPANT WILL BE ABLE TO WRITE REFERENCE INFORMATION IN APA FORMAT FROM MEMORY.

2.1 The participant will be able to write correct APA references for journal articles, books and dissertations.

2.2 The participant will be able to write correct APA references for government documents.

PRETEST

1. Write a reference listing for the following books, journal articles, and dissertations. The reference listing should be alphabetized and should concur with the APA style manual. If there is not enough information to write a complete reference, indicate what information is missing.

A book titled Evaluation in Education. The editor is W. James Popham. In particular, the chapter by Michael Scriven has been cited. The title of the chapter is "Evaluation Perspectives and Procedures." This chapter includes pages 1-94. The book is published by McCutchan Publishing Corporation in Berkeley, California. W. James Popham is residing in Los Angeles, and works at the University of California. The book was published in 1974.

A book titled Human Aging. This book is edited by the following people: James E. Birren, Robert N. Butler, Samuel W. Greenhouse, Louis Sokoloff, and Marian R. Yarrow. The book was published by the U. S. Department of Health, Education and Welfare in Bethesda, Maryland. There is no indication of the year this book was published.

A journal article by Roy A. Edelfelt appeared in the Journal of Teacher Education. The title of the article is "The Reform of Education and Teacher Education: A Complex Task." The article appeared in a Summer, Volume 23, Issue Number 2, pages 117-125. The year is 1972.

A dissertation by T. F. Stroh entitled Videotape feedback in the development of listening skills by industrial salesmen. This dissertation can be obtained from University Microfilms in Ann Arbor, Michigan, but was originally written for Columbia University. Its microfilm number is 69-15,170, and it was published in 1968 originally, though it did not appear in Dissertation Abstracts International until 1969.

2. Write a reference listing for the following government documents. The reference listing should be alphabetized and should concur with the APA style manual.

ED 101 078 CE 002 812
Report on Discussions of the Task Force on the Manpower Distribution Project of the National Health Council.
National Health Council, New York, N.Y.
Spons Agency—National Institutes of Health (DHEW), Bethesda, Md. Bureau of Health Manpower Education.
Report No—DHEW-NIH-73-484
Pub Date Jan 73
Note—43p.; Task Force Meeting (Memphis, Tennessee, January 1973)
EDRS Price MF-$0.76 HC-$1.95 PLUS POSTAGE

ED 101 180 CE 002 949
Gourley, Frank A., Jr.
A State System for Technical Education.
Pub Date 74
Note—13p.; Paper presented at the Annual Meeting of the American Society for Engineering Education (Rensselaer Polytechnic Institute, Troy, New York, June 1974)
EDRS Price MF-$0.76 HC-$1.58 PLUS POSTAGE
Descriptors—Community Colleges, *Educational Administration, Engineering Technology, *Instructional Systems, *State Schools, *Technical Education, Technical Institutes
Identifiers—North Carolina

ED 101 109 95 CE 002 854
South Dakota Career Education: Statewide Implementation of K-14 Project of Career Education, Occupational Counseling, and Bridging the Gap Between School and Work. First Interim Report.
South Dakota Career Education Project, Watertown.
Spons Agency—Bureau of Adult, Vocational, and Technical Education (DHEW/OE), Washington, D.C. Div. of Vocational and Technical Education.
Bureau No—V361015
Pub Date Sep 74
Grant—OEG-0-73-5291
Note—57p.
EDRS Price MF-$0.76 HC-$3.32 PLUS POSTAGE

ED 101 257 CG 009 547
Brozovsky, Paul V
The Effect of Study at the University of Washington Upon an Individual's Life Style. EAC Report No. 268.
Washington Univ., Seattle. Educational Assessment Center.
Report No—EAC-R-268
Pub Date Sep 74
Note—56p.
Available from—Educational Assessment Center, University of Washington, 1400 Campus Parkway, PB-30, Seattle, Washington 98195
EDRS Price MF-$0.76 HC-$3.32 PLUS POSTAGE

ANSWERS TO PRETEST

1. Check your reference list with the model provided below. Your reference list should correspond *exactly* with the model in terms of capitalization, punctuation and information.

Birren, J. E., Butler, R. N., Greenhouse, S. W., Sokoloff, L., & Yarrow, M. R. (Eds.). *Human aging*. Bethesda, Maryland: U. S. Department of H. E. W., (no date).

Edelfelt, R. A. The reform of education and teacher education: A complex task. *Journal of Teacher Education*, 1972, *23*(2), 117-125.

Scriven, M. Evaluation perspectives and procedures. In W. J. Popham (Ed.), *Evaluation in education*. Berkeley, California: McCutchan, 1974.

Stroh, T. F. Videotape feedback in the development of listening skills by industrial salesmen. (Doctoral dissertation, Columbia University, 1968). *Dissertation Abstracts International*, 1969, *vol*.(issue), pages. (Univ. Microfilms No. 69-15,170)

2. Check your reference list with the model provided below. Your reference list should correspond *exactly* with the model in terms of capitalization, punctuation and information.

Brozovsky, P. V. The effect of study at the University of Washington upon an individual's life style. Report No. EAC-R-268. Seattle: Washington University, Educational Assessment Center, 1974. (ERIC ED 101 257.)

Gourley, F. A., Jr. A state system for technical education. Paper presented at the meeting of the American Society for Engineering Education, Troy, New York, June 1974. (ERIC ED 101 180.)

Report on discussions of the task force on the manpower distribution project of the National Health Council. Report for National Institute of Health (DHEW), New York: National Health Council, 1973. (ERIC ED 101 078.)

South Dakota career education: Statewide implementation of K-14 project of career education, occupational counseling, and bridging the gap between school and work. First interim report. Grant No. OEG-0-73-5291, Watertown, South Dakota: South Dakota Career Education Project, 1974. (ERIC ED 101 109.)

ACTIVITIES

If you have failed to complete the pretest correctly, read the next 14 pages carefully. Study each example, and memorize rules for format. For additional information on APA style, see:

Publication manual of the American Psychological Association (2nd edition). Washington, D. C.: American Psychological Association, 1974.

The next nine pages present examples of references to journals, books, chapters in books, dissertations, papers presented at national meetings, and personal communications. These examples are representative of the correct American Psychological Association format.* In general, the journal and book formats appear as follows (each underlined space represents one piece of information):

Journal: Author. Title. Name of journal, Year, Vol.(Issue), Pages.

Book: Author. Title. Location of publisher: Name of publisher, Year.

Read the following pages carefully for exceptions to the above examples, and specific instructions for capitalization and punctuation. Eight additional pages present examples of references to government documents.

---

*Reprinted by permission from the *Publication Manual of the American Psychological Association*, 2nd edition, 1974 by APA, publishers (pages, 67, 122-129).

Appendix C: Examples of Reference Citations in APA Journals

Kind of Reference	Typewritten Example	Comment
PERIODICALS		
1. Journal article One author	Harlow, H. F. Fundamental principles for preparing psychology journal articles. Journal of Comparative and Physiological Psychology, 1962, 55, 893-896.	
2. Journal article Two authors Journal paginated by issue	Atkinson, R. C., & Shiffrin, R. M. The control of short-term memory. Scientific American, 1971, 225(2), 82-90.	a. If each issue of a journal starts with page 1, include the issue number after the volume number in parentheses.
3. Journal article Corporate author	The Royal Society Conference of Editors. Metrication in scientific journals. American Scientist, 1968, 56, 159-164.	a. Alphabetize corporate authors according to the first significant word of the name (in this case, "Royal").
4. Magazine article Discontinuous pages	Miller, G. A. On turning psychology over to the unwashed. Psychology Today, December 1969, pp. 53-54; 66-74.	a. Even though magazines carry volume numbers, identify them by issue date. b. If an article begins in the front and continues elsewhere, give all page numbers and indicate the discontinuity with a semicolon. c. When the volume number is not given, use "p." or "pp." before the page numbers. When volume and page numbers are both given, omit "Vol." and "p." (see Examples 1–3).

PERIODICALS—CONTINUED

5. Magazine article No author	The blood business. *Time*, September 11, 1972, pp. 47-48.	a. See comments 4a and 4c. b. If there is no author, begin the entry with the title of the work and alphabetize according to the first significant word of the title (in this case, "blood"). c. In text, the parenthetical citation is: ("The Blood Business," 1972).
6. Newspaper article No author Discontinuous pages	Eight APA journals initiate controversial blind reviewing. *APA Monitor*, June 1972, pp. 1; 5.	a. See comments 4a–c and 5b. b. In text, the parenthetical citation is: ("Eight APA Journals," 1972).
7. Monograph with issue number and serial number Two authors Subtitle	Maccoby, E. E., & Konrad, K. W. The effect of preparatory set on selective listening: Developmental trends. *Monographs of the Society for Research in Child Development*, 1967, *32*(4, Serial No. 112).	a. Capitalize the first word of a subtitle. b. For monographs, give both the issue number and serial (or whole) number to facilitate retrieval.
8. APA monograph with whole number	Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1966, *80*(1, Whole No. 609).	a. Examples 8-10 illustrate different ways monographs have been published in APA journals. Each citation is appropriate for a different kind of monograph publication. b. *Psychological Monographs* were published through 1966.

Kind of Reference	Typewritten Example	Comment
PERIODICALS—CONTINUED		
9. APA monograph bound separately as a supplement to journal Three authors	Paivio, A., Yuille, J. C., & Madigan, S. A. Concreteness, imagery, and meaningfulness values for 925 nouns. Journal of Experimental Psychology Monograph, 1968, 76(1, Pt. 2).	a. See comment 8a. b. Monographs were published as supplements from 1967 to 1970.
10. APA monograph bound into journal with continuous pagination Three authors	Wagner, A. R., Rudy, J. W., & Whitlow, J. W. Rehearsal in animal conditioning. Journal of Experimental Psychology, 1973, 97, 407-426. (Monograph)	a. See comment 8a. b. Monographs have been bound into the journals since 1971.
11. Summary in APA Proceedings Proper name in article title	Smart, K. L., & Bruning, J. L. An examination of the practical import of the von Restorff effect. Proceedings of the 81st Annual Convention of the American Psychological Association, 1973, 8, 623-624. (Summary)	a. Treat annual books, such as the *Proceedings* and the *Annual Review of Psychology*, as periodicals. However, treat the following exceptions as books: (1) *Nebraska Symposium* (see Example 24) (2) 1965 *Proceedings* because 1966 was Vol. 1 of the *Proceedings*. b. Capitalize a proper name (Restorff) in an article title.
12. Abstract appearing without supporting article	Carpenter, G. C., & Stechler, G. Selective attention to mother's face from Week 1 through Week 8. American Psychologist, 1967, 22, 510. (Abstract)	a. If only an abstract is used in research, this citation is appropriate.

PERIODICALS—CONTINUED

13. Citation from a secondary source Title translated into English	Stutte, H. [Transcultural child psychiatry.] Acta Paedopsychiatrica, 1972, 38(9), 229-231. (Psychological Abstracts, 1973, 49, No. 1067.)	a. See also Example 25. b. In a few cases, pertinent material is available only from a secondary source. Indicate the secondary source in these rare cases. c. Use brackets to indicate a translation. d. In text, cite the date of the original publication (in this case, 1972).
14. Article available from the APA Journal Supplement Abstract Service (JSAS)	Shaefer, C. D., & Millman, H. L. Behavior change in boys during residential treatment. JSAS Catalog of Selected Documents in Psychology, 1973, 3, 88. (Ms. No. 421)	a. This citation is used whether the abstract in the *Catalog* or the full document was used as a source. The citation gives the information necessary for retrieval of either form of the paper.
15. Doctoral dissertation available on University Microfilms (and thus listed in *Dissertation Abstracts International*)	Shepherd, J. C. An evaluation of group and individual models of career counseling (Doctoral dissertation, University of Utah, 1973). Dissertation Abstracts International, 1973, 34, 3071A-3072A. (University Microfilms No. 73-29, 395)	a. See Example 31 for unpublished dissertation available only from a library. b. Beginning with Vol. 27, *Dissertation Abstracts* paginates in two series, A for humanities and B for sciences. c. Beginning with Vol. 30, the title of *Dissertation Abstracts* is *Dissertation Abstracts International.* d. This citation is used whether the abstract, microfilm, or library copy was used as a source. The citation gives the information necessary for retrieval of any of the three forms of the dissertation.

Kind of Reference	Typewritten Example	Comment
PERIODICALS—CONTINUED		
16. Reference available from the Educational Resources Information Center (ERIC)	Norberg, K. D. Iconic signs and symbols in audio-visual communication. Sacramento, Calif.: Sacramento State College, 1966. (ERIC Document Reproduction Service No. ED 013 371)	a. This example is the sample ERIC document in *Research in Education*, the ERIC abstract journal. The main entry of the reference gives information on the original document: author and title (in italics because it is available in microform) and the relevant facts of the original publication (where and when the document originated). The parenthetical information enables a person to locate the document through ERIC.
17. Computer program abstracted in *Behavioral Science*	Stoloff, P. H. REGFIT: A curvilinear regression program. Behavioral Science, 1971, 16, 518. (CPA 419)	
BOOKS		
18. Book Two authors Second edition Jr. in name	Strunk, W., Jr., & White, E. B. The elements of style (2nd ed.). New York: Macmillan, 1972.	a. If the place of publication is a well-known city, do not give the state. b. Give the publisher name in as brief a form as is intelligible.
19. Book Corporate author Author as publisher Revised edition	U.S. Government Printing Office. Style manual (Rev. ed.). Washington, D.C.: Author, 1973.	a. See comment 3a on corporate author.

BOOKS—CONTINUED

20. Book No author	*Mathematics in type*. Richmond, Va.: Byrd Press, 1954.	a. See comment 5b on no author. b. Place of publication: If several cities have the same name or if the city is obscure, give the state name in abbreviated form. c. In text, the citation is: (*Mathematics in Type*, 1954).
21. Book in press Two authors	Hewett, F. M., & Forness, S. R. *Education of exceptional learners*. Boston: Allyn & Bacon, in press.	a. In text, the citation is: (Hewett & Forness, in press). b. Do not give a date until the book is published.
22. All volumes of multivolume, edited work	Maher, B. A. (Ed.). *Progress in experimental personality research* (6 vols.). New York: Academic Press, 1964-1972.	a. In text, the citation is: (Maher, 1964-1972).
23. Article in an edited book Two editors One volume of multivolume work	Riesen, A. H. Sensory deprivation. In E. Stellar & J. M. Sprague (Eds.), *Progress in physiological psychology* (Vol. 1). New York: Academic Press, 1966.	a. When editors' names are not in author position, do not invert names and do not use a comma between two names. b. Give page numbers, if needed, with the text citation, not in the reference list.

Kind of Reference	Typewritten Example	Comment
BOOKS—CONTINUED		
24. Nebraska Symposium Volume in a series	Aronson, E. Some antecedents of interpersonal attraction. In W. J. Arnold & D. Levine (Eds.), Nebraska Symposium on Motivation (Vol. 17). Lincoln: University of Nebraska Press, 1969.	a. Treat the Nebraska Symposium as an edited book. Capitalize the title of the book because it is an official title. b. Place of publication: Do not give the state name because it is part of the publisher's name.
25. Citation from a secondary source	Lindquist, E. F. Design and analysis of experiments in psychology and education. Boston: Houghton Mifflin, 1953.	a. See also Example 13. b. In text, the citation is: Norton (cited in Lindquist, 1953). This citation is used because Lindquist summarizes the results of an unpublished study by Norton. Thus, the Norton reference is most available in a secondary source, the Lindquist book.
26. Article translated within an edited book Volume (roman) part of title of book Reprint from other source	Donders, F. C. [On the speed of mental processes.] In W. G. Koster (Ed. and trans.), Attention and performance II. Amsterdam: North-Holland, 1969. (Reprinted from Acta Psychologica, 1969, 30.)	a. See comment 13c on use of brackets. b. Because the roman numeral is part of the title, do not change it to an arabic numeral. c. The first three volumes of this series are reprints of *Acta Psychologica* volumes.
27. Translated book Edited book A modern reprint of an older edition Republished work	Freud, S. [New introductory lectures in psychoanalysis] (J. Strachey, Ed. and trans.). New York: Norton, 1965. (Originally published, 1933.)	a. In text, the citation is: (Freud, 1933/1965). Give both dates to place the work chronologically in text and to locate the entry in the reference list.

MISCELLANEOUS CITATIONS

28. Technical report available from the National Technical Information Service (NTIS)	Gordon, M. A., & Bottenberg, R. A. *Prediction of unfavorable discharge by separate educational levels* (PRL-TRD-62-5). Lackland Air Force Base, Tex.: 6570th Personnel Research Laboratory, Aerospace Medical Division, April 1962. (NTIS No. AD-284 802)	a. If the report is *not* available from NTIS or the Government Printing Office, cite it as a reference *note*, not in the reference list (see section 3.61).
29. Government publication available from the Government Printing Office (GPO)	Clements, S. D. *Minimal brain dysfunction in children* (NINDS Monograph No. 3, U.S. Public Health Service Publication No. 1415). Washington, D.C.: U.S. Government Printing Office, 1966.	a. See comment 28a.
30. Human Resources Research Organization (HumRRO) technical report	Miller, E. E. *A taxonomy of response processes* (HumRRO Tech. Rep. 69-16). Alexandria, Va.: Human Resources Research Organization, September 1969.	a. HumRRO reports are widely available. They frequently have ERIC and NTIS numbers as well (see Examples 16 and 28).
31. Unpublished doctoral dissertation available from library	Lightburn, L. T. *The relation of critical fusion frequency to age.* Unpublished doctoral dissertation, University of New Jersey, 1951.	a. If dissertation is available on microfilm, use Example 15.

Table 10—Continued

Kind of note	Typewritten example	Comment
Paper presented at a meeting	8. Zedeck, S., & Baker, H. T. *Evaluation of behavioral expectation scales*. Paper presented at the meeting of the Midwestern Psychological Association, Detroit, May 1971.	Give state name if the city is not well known.
Contribution to a symposium	9. Bugental, D. E. Inconsistency between verbal and nonverbal components in parental communication patterns: Its interpretation and effects. In P. Zimbardo (Chair), *Consistency as a process and a problem in psychology.* Symposium presented at the meeting of the International Congress of Psychology, Tokyo, 1972.	
Personal communication	10. Barnes, J. Personal communication, July 18, 1970.	Give as exact a date as possible.

Guidelines for Writing References for Government Documents

[1]Author. [2]Title. [3]Contract/Grant No./Report No., [4]Location of Publisher:
[5]Name of Publisher, [6]Year. (ERIC ED .)

Each underlined and numbered space represents one piece of information which must be supplied. Please note that the model is punctuated correctly.

1. Last name and initials only (e.g., Smith, B. G.). If more than one author's name is listed, list all author's names in the order in which they appear. If the phrase "and others" appears on the abstract, use "et al.". Do not include any titles such as "Sister," "Ph.D.," etc. The only additional title that may be included is "Sr.," or "Jr.".

2. Capitalize only the first work in the title, the first word after a colon or period. Initials which appear in bold, capitalized print on the abstract, may also be capitalized, as well as proper names (i.e., names of states, agencies, etc.).

3. This space should be filled by only one of the following. The choices are listed in order of priority. Move down the list from a - d, and use the first example that corresponds with the available information listed in the abstract. As soon as you find the first example that fills this space, do not include any additional information. For example, if there is information which corresponds with both a and d, use only the information requested by a. Also, include only the information requested by whichever form you use. Do not include information about the location of an agency.
   a. Paper presented at a national meeting - see #6 below.
   b. "Contract No. OEC __________" or "Grant No. OEG ____________" - only one of these would appear. Write the information down in the form illustrated within the quotation marks.
   c. "Report for ___________(D/HEW)"
   d. "Report No. ___________" or "Contract No. ____________" - any number except an OEC or OEG No.
   e. "Report for ________" - any place except a D/HEW agency.

4. Refers to the location of the institution which actually wrote the paper or conducted the research. This is not the same institution which is listed under "Report for" information. Of course, if there is information on the abstract indicating where to write to obtain the document (ERIC uses the phrase "Available from"), use this information. Use only the city and state, do not include street addresses, etc. When two locations are given, use either one.

5. Refers to the institutiion which did the writing of the paper. Of course, you should have in mind the same institution for both parts 4 and 5 of this outline. If the institution which did the writing of the paper is a smaller organization which is part of a larger organization, list the larger institution first and then the smaller one (e.g., "The University of Texas, The Research and Development Center for Teacher Education").

6. Year only. Do not list month unless the reference is to a paper presented at a professional meeting. If you are writing up a paper presented at a professional meeting, refer to APA guidelines for the format.

Examples of Government Document References

Watson, C., & Quazi, S. School planning manual. Report for the Waterloo County Board of Education, Toronto, Ontario: Ontario Institute for Studies in Education, Publication Sales, 1973. (ERIC ED 097 753.)

ED 097 753 **EA 006 429**
Watson, Cicely Quazi, Saeed
School Planning Manual.
Ontario Inst. for Studies in Education, Toronto. Dept. of Educational Planning.
Spons Agency—Waterloo County Board of Education, Kitchener (Ontario).
Pub Date 73
Note—232p.
Available from—Publication Sales, Ontario Institute for Studies in Education, 252 Bloor Street West, Toronto 5, Ontario (Canada) ($4.50)
Document Not Available from EDRS.
Descriptors—*Administrator Education, Bibliographies, Boards of Education, Educational Administration, *Educational Planning, Enrollment Projections, Futures (of Society), *Higher Education, Master Plans, Neighborhood Schools, Population Trends, *School Construction, School Demography, Tables (Data), Teacher Supply and Demand, *Textbooks
Identifiers—Canada, Ontario

This text arose out of a practicum course for school planners given by the authors at the Ontario Institute for Studies in Education. The practicum is the core course of an M.Ed. program, which was designed to prepare planning-administrators for work at the level of the board of education in a system of education such as that of the province of Ontario. Topics covered in the book include economic base study, population projections, projecting enrollment, schools in the neighborhood, school master plan, and projecting the supply and demand of teachers. Working through this book, a school planner should be able to make all the calculations needed to prepare a county "master plan." Many of the examples used are taken from Ontario practice and conditions, but the tasks and responsibilities are those usually assigned local school systems -- whatever the educational authority -- and the techniques and skills are universally applicable. (Author/WM)

Examination of grants awarded to the Berkeley Unified School District and to Bilingual Children's Television Incorporated. Report for the Office of Education (DHEW), Washington, D. C.: Comptroller General of the United States, 1974. (ERIC ED 097 754.)

ED 097 754 **EA 006 441**
Examination of Grants Awarded to the Berkeley Unified School District and to Bilingual Children's Television, Inc.
Comptroller General of the U.S., Washington, D.C.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Report No—B-164031(1)
Pub Date 4 Sep 74
Note—31p.
EDRS Price MF-$0.75 HC-$1.85 PLUS POSTAGE
Descriptors—*Bilingual Education, Educational Assessment, Educational Legislation, Educational Programs, Educational Television, Elementary Education, English (Second Language), Failure Factors, Federal Aid, *Federal Programs, Grants, *Program Administration, Program Costs, *Program Descriptions, *Program Evaluation, Secondary Education, Second Language Learning, Spanish Speaking
Identifiers—*Audits, Berkeley Unified School District, Bilingual Childrens Television, Elementary Secondary Education Act Title VII, ESEA Title VII

At the request of Congresswoman Edith Green, the Comptroller General of the United States reviewed grant procedures covering two awards made by the Office of Education (OE). The first award, made to the Berkeley Unified School District, was funded under Title VII of the Elementary and Secondary Education Act of 1965, as amended, which provides funds to local educational agencies to develop and carry out demonstration bilingual and bicultural programs. The audit indicated that these funds were used for the development of a national television series although the provisions of Title VII require that grant funds be used only to assist children within a school district and that the Commissioner of Education award such a grant only after determining such a need. A second award was made to Bilingual Children's Television, Inc. (BC/TV), a nonprofit Oakland corporation, under the authority of the Emergency School Aid Act, which authorized OE to provide financial assistance to local educational agencies and public and private nonprofit organizations for special needs incident to the desegregation of elementary and secondary schools. The basic objective of the BC/TV proposal was to develop a bilingual and bicultural (Spanish-English) educational television show to be aired nationally. This award, made by the Commissioner of Education-elect, was granted over strong objections by OE officials after BC/TV's failure to perform under the first grant and management deficiencies disclosed by the Health, Education, and Welfare (HEW) audit agency. The audit agency concluded that BC/TV suffered from delays in funding. (Author/DN)

Shelver, J. Self awareness test instrument. Final Report. Grant No. OEG-0-72-1103, Sioux Falls, South Dakota: Sioux Falls Public Schools, 1973. (ERIC ED 097 535.)

ED 097 535 95 CE 002 305
Shelver, Janet
Self Awareness Test Instrument. Final Report.
Sioux Falls Public Schools, S. Dak.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No—V261001L
Pub Date Jul 73
Grant—OEG-0-72-1103
Note—34p.; For related document see CE 002 281
EDRS Price MF-$0.75 HC-$1.85 PLUS POSTAGE
Descriptors—*Career Awareness, *Career Education, Comparative Analysis, *Elementary Grades, *Self Concept, *Self Concept Tests, Test Results
Identifiers—Pictorial Self Concept Scale for Children, Self Esteem Inventory

The final report of the Sioux Falls, South Dakota elementary project in career awareness and self-awareness analyzes the results of pre- and posttesting for grades 1-6, for experimental and control groups, and for males and females within individual classrooms. Three experimental and three control classes were identified in each of two elementary schools. The testing instrument for grades 1-3 was the "Pictorial Self-Concept Scale for Children in K-4," while the Self-Esteem Inventory was selected as the instrument for grades 4-6. The elementary project was developed on the concept that career awareness is related to the total development of the individual. Teachers of both experimental and control groups were all highly oriented toward helping students develop a positive self-concept; however, teachers of control classes were not provided with planned project activities. Results of pre- and posttesting indicate greater positive change in feelings about self for the experimental groups. Future recommendations were to: continue the self-awareness program for elementary students, provide adequate materials for teachers, provide the services of an elementary counselor, and arrange for inservice programs for teachers. The document contains 13 pages of supportive graphs and tables. (EA)

Labouvie-Vief, G. Learning and intelligence: A review of empirical and theoretical issues. Theoretical paper no. 47. Report for the National Institute of Education (DHEW), Madison, Wisconsin: Wisconsin University, Research and Development Center for Cognitive Learning, 1973. (ERIC ED 097 593.)

ED 097 593 95 CG 009 160
Labouvie-Vief, Gisela
Learning and Intelligence: A Review of Empirical and Theoretical Issues. Theoretical Paper No. 47.
Wisconsin Univ., Madison. Research and Development Center for Cognitive Learning.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Report No—WRDCCL-TR-47
Pub Date Nov 73
Contract—NE-C-00-3-0065
Note—24p.
EDRS Price MF-$0.75 HC-$1.50 PLUS POSTAGE
Descriptors—Cognitive Development, *Individual Differences, *Intellectual Development, *Intelligence, *Learning Theories, Research Projects

The relationship between learning ability and intelligence has continually been a focus of theory and research. It is argued in this paper that the inconclusive results of studies relating individual differences variables such as intellectual abilities to learning are due to a too pragmatic, theoretical orientation. Theoretical models explicating the role of individual differences constructs are examined in a developmental context and compared with empirical efforts to cross-link components of intelligence and learning. In contrast to earlier evaluations, this review suggests that cross-linkages are often meaningful, systematic, and interpretable and that they may form the building blocks for inclusive conceptualizations of intellectual development which pay attention to both treatment and individual differences variance. (Author)

48

Standlee, L. S. et al. Electronics technician direct procurement petty officer (DPPO) pilot program: Phase 1. Report No. AD-778-029; NPRDC-TR-74-20, Springfield, Virginia: National Technician Information Service, 1974. (ERIC ED 097 505.)

ED 097 505 **CE 002 273**
Standlee, L. S. And Others
Electronics Technician Direct Procurement Petty Officer (DPPO) Pilot Program: Phase 1.
Navy Personnel Research and Development Center, San Diego, Calif.
Report No—AD-778-029; NPRDC-TR-74-20
Pub Date Mar 74
Note—29p.
Available from—National Technical Information Service, Springfield, Virginia 22151 (AD-778 029, MF-$1.45; HC-$3.25)
Document Not Available from EDRS.
Descriptors—*Comparative Analysis, Costs, *Educational Programs, *Electronic Technicians, Expenditure Per Student, *Job Training, Military Personnel, Program Evaluation, Time Factors (Learning), Training Techniques

Direct Procurement Petty Officer (DPPO) program trainees, who were recruited after they had acquired technical training in civilian schools (associate or comparable degree in electronics), were compared with regular 'A' school trainees in terms of academic performance, job performance, and cost of training. The DPPO trainees were judged by their immediate supervisors in the fleet to be slightly better than regular trainees in terms of length of time required to learn their job and probable advancement in the Navy. The regular trainees were rated slightly better than the DPPO trainees in ability to use schematics and wiring diagrams. The regular trainees also received slightly higher than average written test scores at Treasure Island. These differences tend to lose their significance, though, in view of the 21 comparisons wherein there was no statistically significant difference in the performance of DPPO and regular trainees. The cost to the Navy of DPPO trainees was lower than that of regular trainees. (NTIS)

C.A.S.E.S. (Career Awareness for Secondary and Elementary Students) testing instrument: Final report. Grant No. OEG-0-72-1103, Sioux Falls, South Dakota: Sioux Falls Public Schools, 1973. (ERIC ED 097 513.)

ED 097 513 **95** **CE 002 281**
C.A.S.E.S. [Career Awareness for Secondary and Elementary Students] Testing Instrument: Final Report.
Sioux Falls Public Schools, S. Dak.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No—V261001L
Pub Date May 73
Grant—OEG-0-72-1103
Note—37p.; For related document see CE 002 306
EDRS Price MF-$0.75 HC-$1.85 PLUS POSTAGE
Descriptors—*Career Awareness, Career Choice, *Career Education, *Educational Research, Elementary Grades, Secondary Grades, *Test Construction, Testing, *Test Interpretation, Test Results, *Tests

This report on the Career Awareness for Secondary and Elementary Students (CASES) project describes the purpose and need for the testing instrument and the research and development stages of its preparation, and offers an analysis of findings. The test results are presented diagrammatically and discussed. Conclusions reached included: (1) the testing instrument indicated that students in the experimental group gained more career awareness information than those in control groups; (2) the slides contained in the testing instrument produced various degrees of confusion among students; and (3) the answer sheet required an excess amount of time to correct. Appendixes list the slides, student reactions to the slides, and posttest results. (NH)

Hoffman, G. L. School age child care: A primer for building comprehensive child care service. Report for the Community Services Administration (DHEW), Washington, D. C.: U.S. Government Printing Office, Superintendent of Documents, 1973. (ERIC ED 097 425.)

ED 097 425 CE 002 140
Hoffman, Gertrude L.
School Age Child Care: A Primer for Building Comprehensive Child Care Services.
Community Services Administration (DHEW), Washington, D.C.
Report No—DHEW(SRS)-73-23006
Pub Date [73]
Note—24p.
Available from—Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (Stock Number 1761-0031, $0.65)
EDRS Price MF-$0.75 HC-$1.50 PLUS POSTAGE
Descriptors—*Child Care, *Child Care Centers, *Child Development, Childhood Needs, Child Rearing, Child Welfare, Day Care Programs, *Day Care Services, Services, Welfare Agencies, *Welfare Services
Identifiers—*Preadolescents

The two primary purposes of this document are to emphasize the enormous need for child care services for school age children 6 through 14 years of age, who for some reason, need care and supervision for part of the day as a supplement to parental care. Second, to determine the needs of working mothers through the administration of child care programs by public welfare agencies. The development of child care services for school age children must take into account the importance of sound maturing process for growth, balances between guidance and direction and expanding opportunities for independent thought and action, and provide for physical, emotional, intellectual and social growth. Generally a community needs four types of child care facilities in order to meet differing needs and desires of both parents and children. The four types explored are the day care center, family day care home, small group day care home, and in-home care. The final section gives some ideas and examples of ways an agency might organize its efforts in order to establish a network of good school age child care services. A two-page bibliography is appended. (BP)

National capitol area's homemaker service training manual. Report for Community Services Administration (DHEW), Washington, D.C.: Community Services Administration, Homemaker Service of the National Capitol Area, Inc., 1972. (ERIC ED 097 426.)

ED 097 426 CE 002 147
National Capital Area Homemaker Service Training Manual.
Community Services Administration (DHEW), Washington, D.C.; Homemaker Service of the National Capital Area, Inc., Washington, D.C.
Report No—DHEW-SRS-72-23007
Pub Date 72
Note—128p.
EDRS Price MF-$0.75 HC-$6.60 PLUS POSTAGE
Descriptors—Case Studies, Child Care, Child Rearing, Family Life Education, Geriatrics, *Guides, *Homemaking Education, Homemaking Skills, Home Management, Mental Health, Nutrition, Physical Health, Records (Forms), Senior Citizens, Service Education, *Service Occupations, *Training, Vocational Education

This training manual is designed to help in the training of women for homemaker service. The material specifies what will be most meaningful to the homemaker trainees in their daily work as well as to give insights into the larger problems of families in trouble and to advance the goals of the homemaker service. In connection with the trainee program these topics are concentrated upon: introduction to homemaker service; goals, role of the homemaker, and types of services; working with people in trouble; children; the homemaker and the elderly; the homemaker and the care of the sick; the homemaker and mental health; the homemaker--nutrition and home management; agency policies and procedures; and agency forms and related materials. Each of these topics is taught through informal discussions, lectures, practice, and demonstrations. Supplementary aids which have proved to be helpful include films, case histories, and problem-setting questions. (Author/BP)

Beers, H. W. Industrial trends: Implications for development. A paper presented at the Third World Congress of Rural Sociology, Baton Rouge, Louisiana, August 1972. (ERIC ED 097 449.)

ED 097 449 CE 002 211
Beers, Howard W.
Industrial Trends: Implications for Development.
Pub Date 21 Aug 72
Note—28p.; Paper presented at the Third World Congress of Rural Sociology (Baton Rouge, Louisiana, August 21-25, 1972)
EDRS Price MF-$0.75 HC-$1.85 PLUS POSTAGE
Descriptors—*Developing Nations, *Development, Economic Development, Economic Progress, Employment Trends, Futures (of Society), *Industrialization, Industrial Structure, Population Growth, *Population Trends, Technological Advancement

This paper, in "Part I--Trends in Industrial Development"--notes that industrial development is continuing in developing countries, but with such discontinuity, diversity, and selectivity that generalizations are difficult. In the first development decade (the 1960's), industrialization did not fulfill expectations, and gaps in economic status widened. The modernization trend increasingly incorporated orientation to the future, but emphasis on growth lessened while emphasis on environmental consequences intensified, and the post-industrial service sector assumed major importance. Regional and global theaters of development gained in importance; and economic, social, and biological philosophies were blended in the revival of ecological values. "Part II--Industrialization: Implications for Other Sectors"--surveys the classical model of impact, growth of population, distribution of population, poverty and the maldistribution of income, occupations and employment, and infrastructure. "-Part III--Concluding Note" discusses some major implications, such as industrialization is a necessary but insufficient contribution in the development of developing countries. A 44-item bibliography is appended. (NH)

Ertie, V. et al. A guide to correctional vocational training: The first national sourcebook. Grant No. OEG-0-4371, San Francisco, California: Far West Laboratory for Educational Development; Newton, Massachusetts: New England Resource Center for Occupational Education, 1973. (ERIC ED 097 499.)

ED 097 499 95 CE 002 267
Ertle, Vicki And Others
A Guide to Correctional Vocational Training: The First National Sourcebook.
Far West Lab. for Educational Research and Development, San Francisco, Calif.; New England Resource Center for Occupational Education, Newton, Mass.
Spons Agency—Bureau of Adult, Vocational, and Technical Education (DHEW/OE), Washington, D.C. Div. of Vocational and Technical Education.
Pub Date Jul 73
Grant—OEG-0-4371
Note—433p.
EDRS Price MF-$0.75 HC-$21.00 PLUS POSTAGE
Descriptors—Apprenticeships, College Cooperation, *Correctional Education, *Correctional Rehabilitation, Distributive Education, *Guides, Interagency Cooperation, Interinstitutional Cooperation, Off the Job Training, Professional Education, *Program Descriptions, Rehabilitation Counseling, *Rehabilitation Programs, Technical Education, Trade and Industrial Education, Vocational Education, Vocational Rehabilitation, Work Experience Programs

The sourcebook is the result of the first major, nationwide research project designed to produce detailed information on how various inmate training programs are implemented, financed, and operated. Most of the book is devoted to reports on individual training programs operating in correctional institutions, or serving inmate-students in outside training facilities. The 66 program descriptions are organized by type into seven chapters: (1) school and college cooperative programs; (2) business and industry cooperative programs; (3) trade union cooperative programs; (4) professional and paraprofessional programs; (5) programs utilizing new approaches in traditional courses; (6) short term and prevocational programs; (7) programs exemplifying a variety of organizational methods. The selection of programs was not random; the programs selected, however, are not intended by the authors to represent the ideal. Each program selected for description met some of the authors' four criteria of replicability, uniqueness, success, and distribution. The variety ranges from programs termed gargantuan to minicourses; from programs in maximum security prisons to programs that send inmates outside the walls; and from welding courses to commercial diving courses. (AJ)

POSTTEST

1. Write a reference listing for the following books, journal articles, and dissertations. The reference listing should be alphabetized and should concur with the APA style manual. If there is not enough information to write a complete notecard, indicate what is missing.

   A dissertation by M. D. Loper which appeared in series A of Dissertation Abstracts International, 1971, pp. 3712-3713 (Volume 38, issue 8). Entitled "Videotape Feedback and Changes in Self Concept During and After Sensitivity Training."

   A journal article by Francis F. Fuller which appeared in 1969, Vol. 6 of American Educational Research Journal, pp. 207-226. Entitled Concerns of Teachers: A Developmental Conceptualization.

   A book entitled Learning to Work in Groups: A guide for Educational Leaders, written by Mat Miles. This book was published in 1959 by Teachers College, which is a part of Columbia University in New York, New York.

   A dissertation by Robert C. Murff, written at the University of Texas, but published by University Microfilms in Ann Arbor, Michigan. Entitled "The influence of three videotape playback treatments on teachers of high and low dogmatism and self esteem." Written in 1973.

2. Write up a reference listing for the following government documents. The reference listing should be alphabetized and should concur with guidelines presented in this section of the module.

ED 101 142 95 CE 002 892
Luckner, Barbara A., Ed. Zane, Lawrence F. H., Ed.
Familiarization and Dissemination of Selected Vocational-Technical Curriculum and Resource Materials. Final Report.
Hawaii Univ., Honolulu. Dept. of Curriculum and Instruction.
Spons Agency—National Center for Improvement of Educational Systems (DHEW/OE), Washington, D. C.
Bureau No—BR-0-02518
Pub Date Jun 74
Grant—OEG-0-70-1970(725)
Note—199p.

ED 101 184 CE 002 953
A Directory of Programs Training Physician Support Personnel: 1973-74.
American Medical Association, Chicago, Ill. Dept. of Health Manpower.; Health Resources Administration (DHEW/PHS), Bethesda, Md. Div. of Manpower Intelligence.
Report No—DHEW-NIH-74-318
Pub Date 74
Note—35p.

ED 101 061 95 CE 002 775
Shegog, Bedeliah And Others
Factors Associated with Achievement in Adult Basic Education (Evaluation of Adult Basic Education in the Quitman County Center for Learning and Educational Development).
Mary Holmes Coll., West Point, Miss.; Quitman Centers for Learning, Marks, Miss.
Spons Agency—Office of Education (DHEW), Washington, D. C. Div. of Adult Basic Education.
Pub Date 72
Grant—OEG-0-8-034156-4368(324)
Note—97p.; For related documents see CE 002 776-777

ED 101 318 CS 001 614
Levin, Joel R.
What Have We Learned About Maximizing What Children Learn? Theoretical Paper No. 49.
Wisconsin Univ., Madison. Research and Development Center for Cognitive Learning.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Report No—WRDCCL-TP-49
Pub Date Jul 74
Contract—NE-C-00-3-0065
Note—31p.; Report from the Project on Children's Learning and Development

ED 101 256 CG 009 546
Winn, Mitchell
The Drug Alternative.
American Alliance for Health, Physical Education, and Recreation, Washington, D.C. Association for the Advancement of Health Education.
Spons Agency—Smith, Kline and French Labs., Philadelphia, Pa.
Pub Date 74
Note—64p.
Available from—American Alliance for Health, Physical Education and Recreation, 1201 16th Street, N.W., Washington, D.C. 20036

ED 101 183 CE 002 952
Levine, Eugene, Ed.
Research on Nurse Staffing in Hospitals; Report of the Conference, May 1972.
National Institutes of Health (DHEW), Bethesda, Md. Div. of Nursing.
Report No—DHEW-(NIH)-73-43-1
Pub Date May 72
Note—193p.; Report of the conference (Fredericksburg, Virginia, May 23-25, 1972)
Available from—Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (Stock Number 1741-00055, $2.35)

ANSWERS TO POSTTEST

1. Check your reference list with the model provided below. Your reference list should correspond exactly with the model in terms of capitalization, punctuation and information.

   Fuller, F. F. Concerns of teachers: A developmental conceptualization. American Educational Research Journal, 1969, 6, 207-226.

   Loper, M. D. Videotape feedback and changes in self concept during and after sensitivity training. Dissertation Abstracts International, 1971, 38-A(8), 3712-3713.

   Miles, M. Learning to work in groups: A guide for educational leaders. New York, New York: Columbia University, Teachers College, 1959.

   Murff, R. C. The influence of three videotape playback treatments on teachers of high and low dogmatism and self esteem. (Doctoral dissertation, University of Texas, 1973). Dissertation Abstracts International, year, vol.(issue), pages. (University Microfilms No. ________).

2. Check your reference list with the model provided below. Your reference list should correspond exactly with the model in terms of capitalization, punctuation and information.

   A director of programs training physician support personnel: 1973-74. Report for Health Resources Administration (DHEW/PHS), Chicago: American Medical Association, Department of Health Manpower, 1974. (ERIC ED 101 184.)

   Levin, J. R. What have we learned about maximizing what children learn? Theoretical paper no. 49. Report for National Institute of Education (DHEW), Madison, Wisconsin University, Research and Development Center for Cognitive Learning, 1974. (ERIC ED 101 318.)

   Levine, E. (Ed.) Research on nurse staffing in hospitals; report of the conference, May, 1972. Report for National Institute of Health (DHEW) Washington, D. C.: U. S. Government Printing Office, Superintendent of Documents, 1972. (ERIC ED 101 183.)

   Luckner, B. A., & Zane, L. F. H. (Eds.) Familiarization and dissemination of selected vocational-technical curriculum and resource materials. Final report. Grant No. OEG-0-70-1970(725), Honolulu, Hawaii: Hawaii University, Department of Curriculum and Instruction, 1974. (ERIC ED 101 142.)

   Shegog, B. et al. Factors associated with achievement in adult basic education (evaluation of adult basic education in the Quitman County Center for Learning and Educational Development). Grant No. OEG-0-8-034156-4368(324), Marks, Mississippi: Quitman Centers for Learning, 1972. (ERIC ED 101 061.) or West Point, Mississippi: Mary Holmes College, 1972.

   Winn, M. The drug alternative. Report for Smith, Kline and French Labs, Washington, D. C.: American Alliance for Health, Physical Education and Recreation, Association for The Advancement of Health Education, 1974. (ERIC ED 101 256.)

PART 3: LOCATING REFERENCES IN THE LIBRARY

Actually tracking down references in the library takes a lot of time and detective work. This section will provide you with maps of the library, and listings of places to look for references.

OBJECTIVE 3:

> THE PARTICIPANT WILL BE ABLE TO LOCATE REFERENCES IN THE LIBRARY AND MAINTAIN A RECORD OF THE SEARCH.

PRETEST

On the maps provided in the next two pages,* locate each of the following items. (A "(2)" next to an item requests that University of Texas participants locate the item in both the Main Library and Battle Hall Library.)

ERIC Thesaurus

ERIC RIE Index

ERIC CIJE Index

Psychological Abstracts Thesaurus

Psychological Abstracts Index

Psychological Abstracts Author Index

Education Index

Card Catalogue by subject, author, title (2)

Dissertation Abstracts International (2)

General Reference Books

Stacks (2)

Documents Collection

Social Sciences and Humanities Index

Current Journals Room

Computer Terminal

Bound Journals (annual or biannual bound collections)

Bindery Box (card listing of periodicals and books being bound at the bindery)

Listing of all Journals in Library System (2)

Listing of all Journals in a particular Library (2)

Preliminary shelving shelves (shelves for books you have finished using)

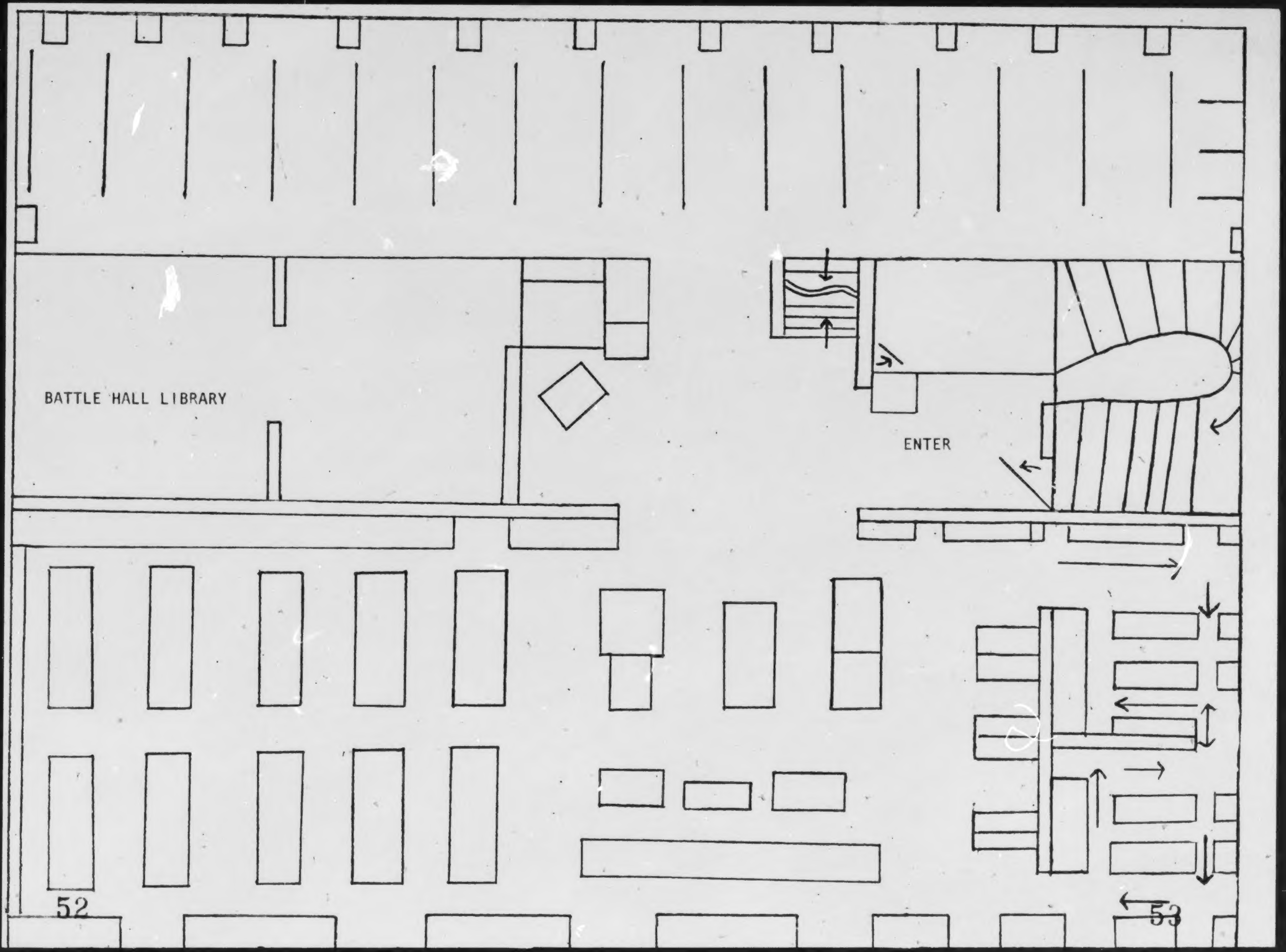
Microfiche files

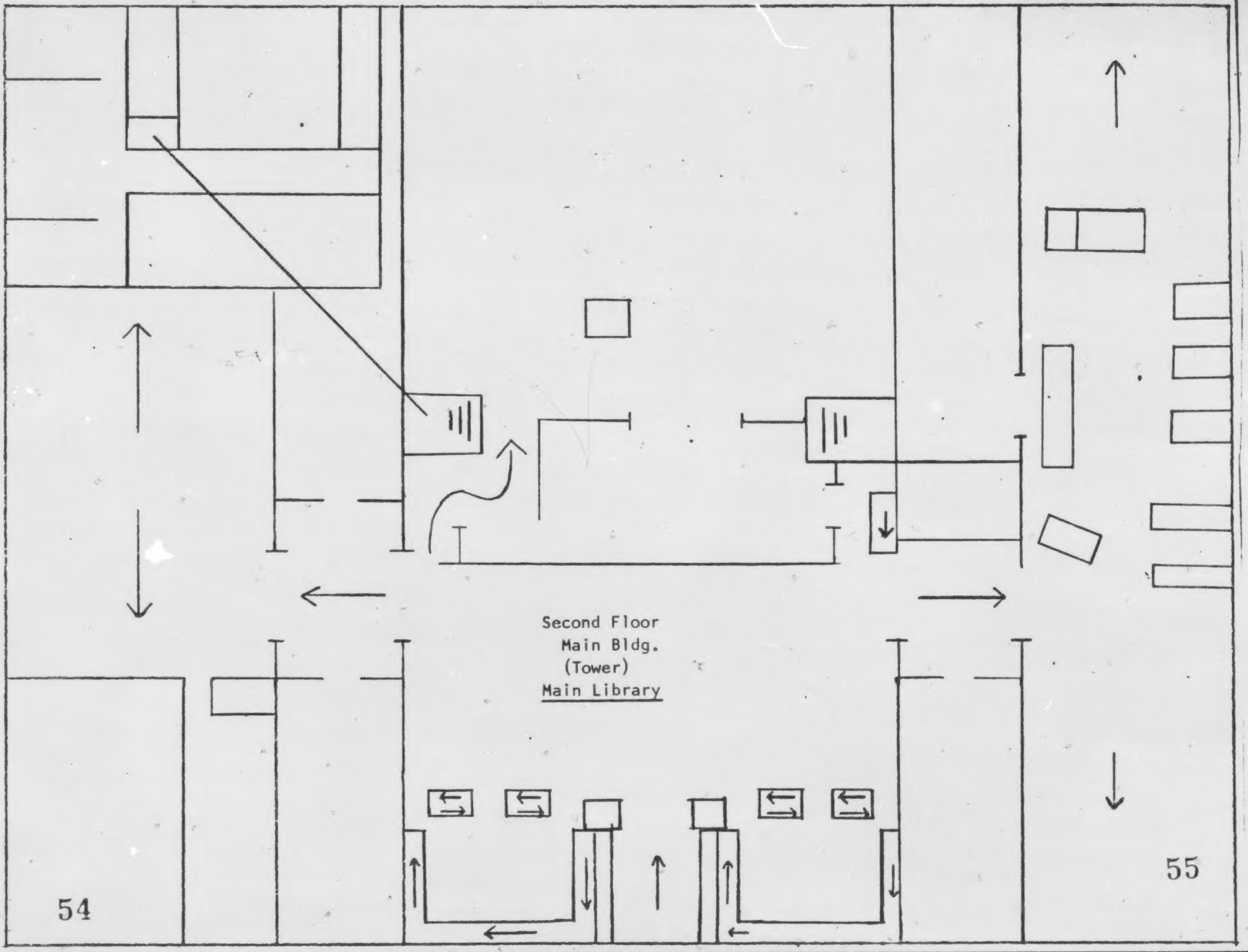
Books in Print

Interlibrary Loan Office

---

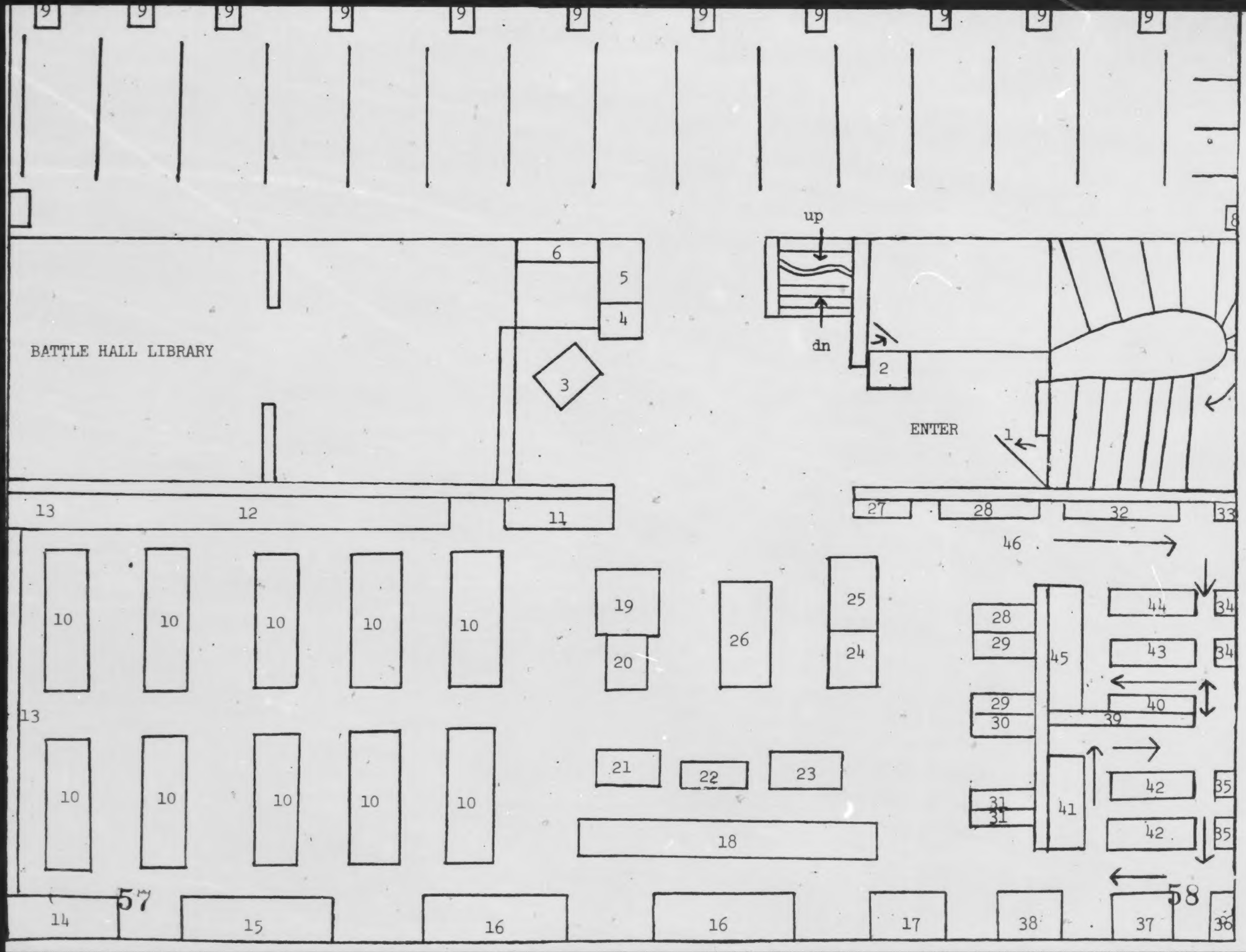
*The module was written specifically for students at the University of Texas. If you are using this module at another institution, substitute appropriate maps for your institution.

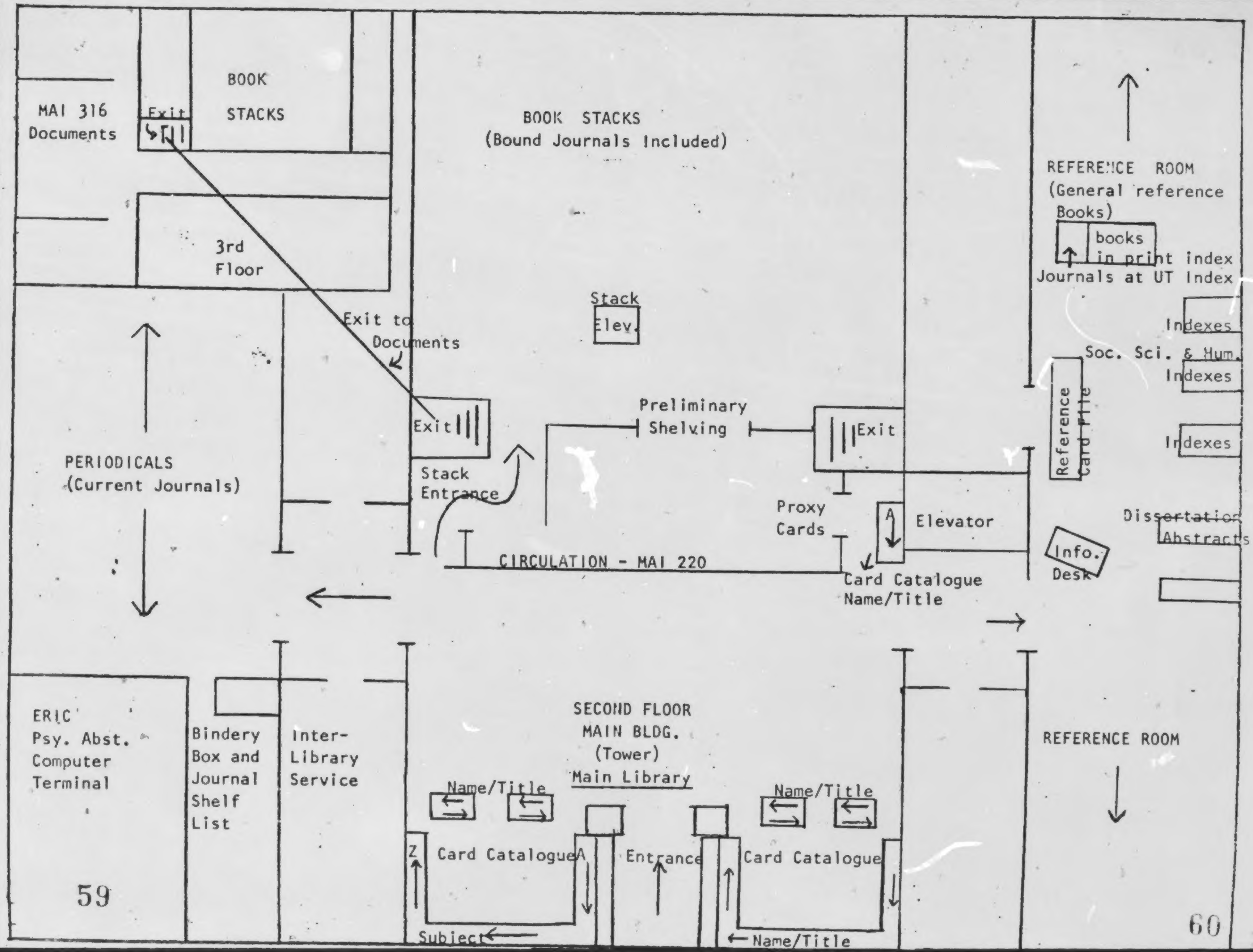

BATTLE HALL LIBRARY
ENTER


Second Floor
Main Bldg.
(Tower)
Main Library

ANSWERS TO PRETEST

Compare your maps with the maps provided. If you are unfamiliar with three or more items, complete the ACTIVITIES and POSTTEST. If you are unfamiliar with fewer than three items, identify the ones you have missed.


BATTLE HALL LIBRARY
ENTER
up
dn
1
2
3
4
5
6
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46


MAI 316 Documents
Exit
BOOK STACKS
BOOK STACKS (Bound Journals Included)
REFERENCE ROOM (General reference Books)
books in print index
Journals at UT Index
3rd Floor
Stack Elev.
Exit to Documents
Indexes
Soc. Sci. & Hum. Indexes
Reference Card File
Indexes
Exit
Preliminary Shelving
Exit
PERIODICALS (Current Journals)
Stack Entrance
Proxy Cards
A
Elevator
Dissertation Abstracts
Info. Desk
CIRCULATION - MAI 220
Card Catalogue Name/Title
ERIC Psy. Abst. Computer Terminal
Bindery Box and Journal Shelf List
Inter-Library Service
SECOND FLOOR MAIN BLDG. (Tower) Main Library
REFERENCE ROOM
Name/Title
Name/Title
Z
Card Catalogue
A
Entrance
Card Catalogue
Subject
Name/Title

Battle Hall Library Map Guide

1. Entrance to fifth level -- double glass doors
2. Water fountain
3. Information desk
4. Table with computer listing of periodicals, Battle Hall periodicals, card file, and bindery box
5. Preliminary shelving table
6. Elevator entrance
7. Preliminary shelving
8. Xerox machines
9. Study carrels
10. Study tables
11. Shelf with new books on architecture
12. Related reference books to educational psychology
13. Architecture reference books
14. Educational psychology reference books
15. Educational psychology reference books
16. Psychological Abstracts and Thesaurus
17. Table with cumulative indexes to Psychological Abstracts, Psychological Abstracts and ERIC data base tallies
18. Study table
19. Architecture card catalogue
20. Architecture card catalogue
21. Architecture card catalogue
22. Educational psychology subject card catalogue
23. Educational psychology subject card catalogue
24. Educational psychology author-title card catalogue
25. Educational psychology author-title card catalogue
26. Table
27. Shelf with new books on educational psychology
28. Dissertation Abstracts International, 1969-1975 (incomplete)
29. Education Index and monthly catalogue of U. S. government publications
30. CIJE-EJ
31. RIE-ED
32. Beginning of alphabet unbound periodicals -- educational psychology

33-39 Unbound periodicals in alphabetical order in this direction

40. End of alphabet unbound periodicals -- educational psychology
41. Microfiche files
42. Tables
43. Architecture unbound periodicals
44. Music unbound periodicals
45. Art unbound periodicals
46. Entrance to unbound periodicals room

ACTIVITIES

Read the following passage and study the maps on pages 56-57 in detail.

Locating References in the Library

The first step in this section is for you to familiarize yourself with the Battle Hall and Main Libraries. Study the maps in detail, go to the library and locate all places listed in the key.

When you go to the library to actually locate a reference source, there are several possible places to look. The following listings are arranged in terms of likelihood of finding a reference. If you fail to find a reference in one place, to on to the next number. The first step is always to get a call number on the reference. If the reference is a book which is obviously related to Educational Psychology, you can look for the call number in the card catalogue at Battle Hall. If you don't find a card for it, try the Main catalogue, in case it is shelved in a different library. The catalogue in Main includes all books in the University of Texas system. This is also true for journals. When searching for references, progress through the following steps:

Books

1. Get call number from either Battle Hall catalogue or Main catalogue. If there is no card on the book, it is not carried in the University of Texas system. We can then decide if we want to obtain the book for other sources.
2. Check the proper shelf.
3. Try preliminary shelving.
4. Check the reserve file.
5. Check on the computer print-out to see if the book is checked out.
6. Place the book on hold (if checked out) or search (if lost).

Journals

1. Check listings of journals in Battle Hall Library and Main Library in order to identify which library carried the journal. Jot down the call number. If there is no record of the journal, University of Texas library does not carry it, and we can decide if we want to obtain the reference from another source.

2. If the journal is recent, check the current periodicals room.
3. Check the shelf where it should be shelved among the bound periodicals.
4. Check the bindery box.
5. Check preliminary shelving.
6. Check on tables around the library.
7. Ask the librarian and fill out a search sheet.

POSTTEST

Locate the following references. If you are unable to actually locate a reference, indicate why the reference was unavailable (e.g., it is not on the shelf, it is at the bindery, it is not carried in the University of Texas system, etc.).

You should return from the library with a record of which references are available in the library, where they are located, which references are not in the library and why not. Do not simply get a call number on a book or journal: actually go to the shelf and locate the reference. When a book is not on the shelf, go to all of the alternative places listed in the ACTIVITIES section, and maintain a record of your searches.

Bibliography

1. Banghart, F. W. Educational systems analysis. London: The Macmillan Company, 1969.

2. Darby, P. J. The effects of temperature and humidity on physical work output performance and reaction time. (Doctoral dissertation, University of Southern Mississippi, 1971) Dissertation Abstracts International, 1971, 32(5), 2464A. (University Microfilms No. 71-28,829)

3. Drew, C. J. Research on the psychological behavioral effects of the physical environment. Review of Educational Research, 1971, 41(5), 447-465.

4. Griffitt, W. Environmental effects of interpersonal affective behavior. Ambient effective temperature and attraction. Journal of Personality and Social Psychology, 1970, 15(3), 240-244.

5. Mayo, G. D. Effects of temperature upon technical training. Journal of Applied Psychology, 1955, 39, 244-246.

6. McCardle, R. W. Thermal environment and learning. (Doctoral dissertation, University of Iowa, 1966). Dissertation Abstracts International, 1966, 27(2), 356A. (University Microfilms No. 66-7217)

7. Nolan, J. A. Influence of classroom temperature on academic learning. Automated Teaching Bulletin, 1960, 1, 19-20.

8. Peccolo, C. The effect of thermal environment on learning. A pilot study. Iowa City, Iowa: Iowa University, Center for Research in School Administration, 1962. (ERIC ED 016 356.)

ANSWERS TO POSTTEST

Check your information against the information provided in the model below. The only differences that should exist would be that some of the references may be on hold, or checked out, or lost. Otherwise, your listing should coincide with this listing.

Bibliography

1. Banghart, F. W. Educational systems analysis. London: The Macmillan Company, 1969.

   Battle Hall Library. Call Number : LB
   2806
   B25
   EDUC

2. Darby, P. J. The effects of temperature and humidity on physical work output performance and reaction time. (Doctoral dissertation, University of Southern Mississippi, 1971). Dissertation Abstracts International, 1971, 32(5), 2464A. (University Microfilms No. 71-28,829)

   Main Library in Dissertation Abstracts International

3. Drew, C. J. Research on the psychological behavioral effects of the physical environment. Review of Educational Research, 1971, 41(5), 447-465.

   Battle Hall Library. Call Number: 370.5
   R 325

4. Griffitt, W. Environmental effects on interpersonal affective behavior. Ambient effective temperature and attraction. Journal of Personality and Social Psychology, 1970, 15(3), 240-244.

   Battle Hall Library. Call Number: 301.1505
   J826

5. Mayo, G. D. Effects of temperature upon technical training. Journal of Applied Psychology, 1955, 39, 244-246.

   Battle Hall Library. Call Number: 150.5
   J827

6. McCardle, R. W. Thermal environment and learning. (Doctoral dissertation, University of Iowa, 1966). Dissertation Abstracts International, 1966, 27(2), 356A. (University Microfilms No. 66-7217)

   Main Library in Dissertation Abstracts International

7. Nolan, J. A. Influence of classroom temperature on academic learning. _Automated Teaching Bulletin_, 1960, _1_, 19-20.

Not in University of Texas library system.

8. Peccolo, C. The effect of thermal environment on learning. A pilot study. Iowa City, Iowa: Iowa University, Center for Research in School Administration, 1962. (ERIC ED 016 356.)

Battle Hall Library, ERIC index. Also on microfilm in Battle Hall Library.

PART 4: GENERATING DESCRIPTORS AND HAND SEARCHING INDEXES

When conducting the actual search for relevant references, the first step is to compile a listing of "descriptors" for a given index. Every index classifies references according to key words called "descriptors." Begin with as many descriptors as you can generate which are related to your topic. As you begin to use the descriptors to scan indexes, narrow your number of descriptors down to the ones which are most relevant. Every index differs at least slightly from every other index in format. However, in general you will search through titles listed under descriptors. Each title will have a corresponding number which refers to an abstract (descriptive summary) of the reference. For your initial search through titles, always select broadly, writing down numbers for every title which is even remotely related to your topic. The next step is to look up the numbers you have jotted down and to read the abstracts. These abstracts will allow you to narrow your list considerably. As you read through abstracts, make a listing of references which appear to be related. Later in this module, a section will focus on processing the references which you have selected (see Part 7).

OBJECTIVE 4:

THE PARTICIPANT WILL BE ABLE TO COMPILE AN ALPHABETICAL LISTING OF REFERENCES RELEVANT TO A GIVEN TOPIC, BY HAND SEARCHING ERIC RIE, ERIC CIJE, PSYCHOLOGICAL ABSTRACTS. THE SEARCH WILL INCLUDE JANUARY AND FEBRUARY 1974.

4.1. The participant will be able to select descriptors for each of the indexes, using the appropriate thesaurus.

4.2 The participant will be able to use the chosen descriptors to search indexes and select titles which may be relevant.

4.3 The participant will be able to identify and read abstracts in order to determine relevancy of references.

4.4 The participant will be able to compile a final listing of relevant references.

PRETEST

1. Compile two separate lists of descriptors for the topics listed below. You will need to make a listing of descriptors for each of the following indexes: ERIC (RIE and CIJE -- one listing of descriptors) and Psychological Abstracts.

   Topic: Differences in academic achievement between males and females, ages 13-18.

2. Using the same descriptors and topic, hand search each of the following indexes for January and February 1974: ERIC RIE, ERIC CIJE, and Psychological Abstracts. First, search through titles listed under your descriptors, writing down the numbers of abstracts which are related to your topic. Then, read the corresponding abstracts, writing down complete APA reference information for relevant references. Finally, arrange your reference list in alphabetical order by author if there is more than one reference.

ANSWERS TO PRETEST

1. You must have listed the underlined descriptors (the other descriptors are optional).

ERIC RIE AND CIJE	PSYCHOLOGICAL ABSTRACTS
sex differences	*human sex differences*
adolescents	*sex linked developmental differences*
teenagers	adolescent development
youth	developmental differences
individual differences	academic achievement
academic achievement	

2. Compare your reference list with the model provided below. Your reference list should lack no more than two of the references listed in the model, and may include no more than one extra reference.

Reference Listing

Abramson, T., & Kagen, E. Effects on achievement from programmed instruction of experimentally induced familiarization of content and different response modes. Final report. Report for the National Center for Educational Research and Development, New York: City University of New York, Office of Teacher Education, 1973. (ERIC ED 082 505.)

Dwyer, C. A. Sex differences in reading achievement: An evaluation and a critique of current theories. *Review of Educational Research*, 1973, *43*(4), 455-468.

Kaufman, A. S., & Kaufman, N. L. Sex differences on the McCarthy scales of children's abilities. *Journal of Clinical Psychology*, 1973, *29*(3), 362-365.

Keller, J. F., et al. Relationships among handedness, intelligence, sex, and reading achievement of school age children. *Perceptual and Motor Skills*, 1973, *37*(1), 159-162.

Welsh, G. S. On the relationship of the California Psychological Inventory's femininity measure and intelligence. *Journal of Counseling Psychology*, 1973, *20*(3), 269-271.

ACTIVITIES

If you have failed to complete the pretest successfully, read the following passage and take the posttest.

Hand Searching Indexes

The first step in a hand search is to identify descriptors relevant to your topic. Descriptors are key words used by an index to classify references. In a hand search, you can use only one descriptor at a time. In a computer search (see Part 5), you may combine up to three descriptors. Each index (ERIC and Psychological Abstracts) publishes a thesaurus containing a unique set of descriptors. In this module, only the ERIC index and Psychological Abstracts Index will be discussed. If you become familiar with these indexes, you will have no difficulty using the Education Index, Dissertation Abstracts, Social Sciences and Humanities Index, or any other indexes you may need to use in the future.

The next few pages describe how to use the ERIC and Psychological Abstracts Thesauruses and indexes.

How ERIC RIE is Organized

ERIC RIE is the index for government reports related to educational research. Monthly volumes of ERIC RIE consist of the following indexes and sections:

Author index
Index by institution
Index by subject (descriptors)
Main entry section (abstracts)

The main entry section of ERIC RIE consists of abstracts of government reports, chronologically numbered by ERIC ED numbers. Indexes list relevant ERIC ED numbers. The researcher first uses the indexes to obtain numbers of ERIC abstracts, and then turns to the main entry section to examine the abstracts themselves. Final selection of relevant government documents is usually dependent on reading the abstracts. If additional information is needed, full documents are available on microfiche (see Part 5).

Annual indexes of ERIC RIE are also published. When using the annual index, it is possible to obtain ERIC abstract numbers for the entire year, and then look up abstracts in either the monthly issues or a cumulative volume of ERIC abstracts.

How ERIC CIJE is Organized

ERIC CIJE is an index of journal articles related to educational research. Journal articles are classified by the following indexes contained within the monthly volumes of ERIC CIJE:

Author index
Index by subject (descriptors)
Journal contents index
Main entry section

The main entry section consists of chronologically number ERIC EJ numbers. Under each EJ number is included the name of a journal article, author, name of journal, other descriptors used to classify the article, and sometimes, a brief abstract.

The researcher identifies EJ numbers in the indexes, and then refers to the main entry section to get complete information on the article. Because journal articles are readily available in the library, the researcher should compile a listing of relevant references, and then search for entire articles from journals.

Annual indexes of ERIC CIJE are also published. When using the annual index, it is possible to obtain EJ numbers for the entire year, and then look up the reference information in either the monthly issues or a cumulative volume of ERIC CIJE.

How Psychological Abstracts is Organized

Psychological Abstracts is an index for journal articles related to psychology and educational psychology. The index is published monthly and contains the following indexes and sections:

Author index
Index by subject (descriptors)
Main entry section (abstracts)

When hand searching Psychological Abstracts, first use the index volume in order to obtain the numbers of abstracts. Next, turn to the appropriate volume of abstracts to read the abstract itself. Because cumulative volumes are published every six to twelve months, it is possible to search several months at once.

Using the ERIC and Psychological Abstracts Thesauruses

ERIC and Psychological Abstracts each have their own thesaurus and unique sets of descriptors. However, both thesauruses are organized in basically the same format, so they will be discussed together. The thesaurus consists of an alphabetical listing of main entry descriptors which are used to categorize references. Under each main entry are listed related descriptors classified by the following symbols:

UF = Used for (words that are not ERIC descriptors. Use main entry descriptor instead.)
SN = Scope Notes (describes particular meaning, scope of meaning of main entry)
USE = ERIC descriptor to be used instead of main entry
NT = Narrower Term (descriptors which are related to main entry descriptor, but have a narrower meaning)
BT = Broader Term (descriptors which are related to main entry descriptor, but have a broader meaning)
RT = Related Term (descriptors which are related in meaning to the main entry descriptor)

Because each main entry descriptor is followed by information on related terms, narrower terms, and broader terms, the thesaurus aids the researcher in generating a list of potentially relevant descriptors to be used in a search. In order to develop a listing of descriptors, proceed through the following steps:

1. Pick out one or two key words which describe the area under investigation.

EXAMPLE: Topic -- Change in teachers' or students' attitudes towards school during a school year.

Key words: Change, Teachers', Students', Attitudes

2. Look up these key words in the thesaurus to determine if they are descriptors. You will find the following (in the ERIC Thesaurus):

CHANGING ATTITUDES 040
BT Attitudes
RT Adoption (Ideas)
Behavior Change
Change Agents

STUDENT ATTITUDES 040
UF Pupil Attitudes
Student Feelings
NT Participant Satisfaction
Student Alienation
BT Attitudes
RT Activism
Student Behavior
Student Evaluation
Student Motivation
Student Opinion
Student Reaction
Student Role
Students

TEACHER ATTITUDES 040
UF Teacher Opinion
Teacher Reaction
NT Teacher Alienation
Teacher Morale
BT Attitudes
RT Teacher Characteristics
Teachers

ATTITUDES 040
NT Administrator Attitudes
Anti Intellectualism
Beliefs
Bias
Changing Attitudes
Childhood Attitudes
Class Attitudes
Community Attitudes
Counselor Attitudes
Design Preferences
Dropout Attitudes
Educational Attitudes
Employee Attitudes
Employer Attitudes
Family Attitudes
Majority Attitudes
Morale
Negative Attitudes
Negro Attitudes
Northern Attitudes
Parent Attitudes
Political Attitudes
Program Attitudes
Racial Attitudes
Resentment
School Attitudes
Scientific Attitudes
Social Attitudes
Southern Attitudes
Sportsmanship
Student Attitudes
Teacher Attitudes
Work Attitudes
RT Affective Behavior
Attitude Tests
Behavior
Biographical Inventories
Forced Choice Technique
Human Dignity
Organizational Climate
Q Sort
Readiness (Mental)
Response Style (Tests)
Stereotypes

3. In this example, the key words were main entry descriptors. If they weren't listed as main entry descriptors, you would be referred by the thesaurus to a word which is similar in meaning and which is a correct descriptor.

EXAMPLE: If you looked up the word "clockmaker" in the ERIC Thesaurus, you would be referred to the descriptor "Watchmaker."

4. Under the descriptor "Changing Attitudes," "Attitudes," "Teacher Attitudes," and "Student Attitudes," a series of broader and narrower terms are listed. Make a listing of all words which are related to your topic.
5. In order to add on to your listing of descriptors, look up each word in the list you have compiled, and repeat the same procedures, selecting and listing relevant descriptors. Continue this procedure until you begin to duplicate yourself and are unable to generate any new words on your list.
6. Selecting the final listing of descriptors: If you are going to conduct your search in the ERIC indexes by hand, you will need to reduce your list to the descriptors which yield the highest number of titles in the least amount of time. The broadest descriptors you have listed may be too broad and include too many superfluous titles. At the same time, the narrower may not cover the area sufficiently. Try several descriptors out for one year to discover which descriptors yield the most related titles.

Summary

When conducting a search for relevant references, proceed through the following steps:

1. Select a list of descriptors for the indexes you wish to search.
2. Look up the descriptors in the corresponding index. Write down abstract numbers or journal information. If you have doubts about a title, include it at this time.
3. Look up the abstracts in the indexes. Write down all the information you will need to write APA notecards on relevant references.

For additional information, read the opening pages in ERIC RIE, ERIC CIJE, and Psychological Abstracts.

POSTTEST

Conduct a search for references related to the topic listed below. Your final product will include a listing of descriptors used (fill in the form provided on the next page) and an alphabetical listing of references related to the topic. Your final reference list should be in APA style. Search the following years: ERIC RIE and CIJE (January 1969 - August 1973) and Psychological Abstracts (January 1967 - August 1973). The topic is:

> The effects of temperature on students' academic achievement in the classroom. Include any references which have a bearing on the topic. Do not limit your selection to references which refer to classroom learning or children. The main emphasis should be on the effects of temperature on any learning or task completion.

DATE: ____________________ NAME: ____________________________

Title of Search:

NAME OF INDEX	YEARS SEARCHED	DESCRIPTORS USED

Journals Hand Searched:

Recommendations, Comments, and Suggestions:

ANSWERS TO POSTTEST

Compare your list of descriptors and reference list with the ones provided below. Your list of descriptors must include the underlined descriptors. Your reference list should include all but twelve of the cited references, and you may have cited seven additional references not included in the model.

Descriptors:

ERIC RIE and CIJE

temperature

air conditioning

climatic factors

heating

classroom environment

heat

climate control

environmental influences

controlled environment

thermal environment

academic performance

PSYCHOLOGICAL ABSTRACTS

temperature effects

environmental effects

cold effects

heat effects

thermal acclimatization

performance

Reference Listing

Airconditioning for schools. A report. New York: Educational Facilities Labs, Inc., 1971. (ERIC ED 050 469.)

Allnutt, M. F. Thermal stress and human performance. *Flight Safety*, 1970, *3*(4), 7-9.

Azer, N. Z. Mcnall, P. E., & Leung, H. C. Effects of heat and stress on performance. *Ergonomics*, 1972, *15*(6), 681-691.

Berlowitz, M. Thermal environment and learning. *Audiovisual Instruction*, 1970, *15*(8), 77.

Climate conditioning for the learning environment. Chicago, Ill.: Perkins & Will Architects, 1968, 15pp.

Darby, P. J. The effects of temperature and humidity on physical work output performance and reaction time. Dissertation Abstracts International, 1971, 32(5A), 2464.

Davis, P. R. (Ed.). Proceedings of the symposium on performance under sub-optimal conditions. London: Taylor & Francis, 1970.

Drew, C. J. Research on the psychological behavioral effects of the physical environment. Review of Educational Research, 1971, 41(5), 447-465.

Epstein, E. H. Ecological factors in comparative analysis: Effects on school achievement in St. Lucia. Comparative Education Review, 1970, 14(3), 312-321.

Fox, W. F. Human performance in the cold. Human Factors, 1967, 9(3), 203-220.

Goldstein, K. M. Weather, mood and internal-external control. Perceptual and Motor Skills, 1972, 35(3), 786.

Goodhartz, N. R. Effects of acute exposure to low ambient temperatures on the work efficiency of young women. Dissertation Abstracts International, 1968, 29(5), 1824B.

Griffiths, I. D., & Boyce, P. R. Performance and thermal comfort. Ergonomics, 1971, 14(4), 457-468.

Griffitt, W. Environmental effects on interpersonal affective behavior: Ambient effective temperature and attraction. Journal of Personality and Social Psychology, 1970, 15(3), 240-244.

Hansen, B. P. A study of the effects of room temperature on learning. Dissertation Abstracts International, 1966, 27(2), 353-354A.

Harner, D. P. Effects of thermal environment on learning skills. CEFP Journal, 12(2), 4-6.

Hartman, R. R. Thermal environment in school facilities. A selected and annotated bibliography. Report for Office of Education (D/HEW), Madison, Wisconsin: University of Wisconsin, 1968.

Holmberg, I., & Wyon, D. P. Dependence of performance in school on classroom temperature. Educational and Psychological Interactions, 1969, (31), 20pp.

Holmberg, I., & Wyon, D. P. School results dependent on classroom temperature. Pedagogisk-Psykologiska Problem, 1967, (55), 17pp.

Holmbert, I., & Wyon, D. P. Systematic observation of classroom behavior during moderate heat stress. Educational and Psychological Interactions, 1972, 34(14).

Iampietro, P. F., et al. Complex performance during exposure to high temperatures. FAA Office of Aviation Medicine Report, 1969, (69-10), 16pp.

Jones, R. D. Effects of thermal stress on human performance: A review and critique of existing methodology. U. S. Army Human Engineering Laboratories Technical Memorandum, 1970, (11-76), 71pp.

Kress, H. O. & Lockhart, J. M. Effects of level and rate of body surface cooling on psychomotor performance. Journal of Applied Psychology, 1970, 54(4), 386-392.

The learning environment. American electric power system. Chicago, Ill.: Perkins & Will Architects, 1968, 24pp.

Lovingood, B. W., Blyth, C. S., Peacock, W. H., & Lindsay, R. B. Effects of d-amphetamine sulfate caffiene and high temperature on human performance. Research Quarterly, 1967, 38(1), 64-71.

Masters, H. G. The effect of high thermal stress exposure rate on human performance. Dissertation Abstracts International, 1969, 29(9), 3509B.

Mayo, G. D. Effects of temperature upon technical training. Journal of Applied Psychology, 1955, 39, 244-246.

McCardle, R. W. Thermal environment and learning. Dissertation Abstracts International, 1966, 27(2), 356A.

Miura, T. On the optimum room temperature for light work. Journal of Science of Labour, 1968, 44(3, Part 2), 1-9.

Peccolo, C. M. Air conditioning -- A necessity or a luxury? Tennessee Education, 1971, 1(1), 36-39.

Pepler, R. D. Performance and well-being in heat. In J. Hardy (Ed.), Temperature: Its measurement and control in science and industry. Vol. 3. New York: Reinhold, 1963. 319-336.

Pepler, R. D., & Warner, R. E. Temperature and learning: An experimental study. ASHRAE Transactions, 1968, 74(2), 211-219.

Poulton, E. C. Environment and human efficiency. Springfield, Ill.: Charles C. Thomas, 1970.

Provins, K. A., & Bell, C. R. Effects of heat stress on the performance of two tasks running concurrently. Journal of Experimental Psychology, 1970, 85(1), 40-44.

Renshaw, F. M. The combined effects of heat and noise on work performance. Dissertation Abstracts International, 1973, 38(8), 3699B.

Rohles, F. H., Jr. Environmental psychology: A bucket of worms. Psychology Today, 1967, 1(2), 55-63.

Rohles, F. H., Jr. Thermal sensations of sedentary man in moderate temperatures. Special report for environmental research. Manhattan, Kansas: Kansas State University Institute for Environmental Research, 1970.

Rutgers, N. Thermal environments. Speech given at the National Vocational-Technical Facility Planning Conference, Nevada, January 1967.

Schutte, F. That elusive, eclectic thing called thermal environment: What a school board should know about it. The American School Board Journal, 1970, 157(12), 17-22.

Teichner, W. H. Individual thermal and behavioral factors in cold-induced vasodilation. Psycho-physiology, 1966, 2(4), 295-304.

Teichner, W. H., & Olson, D. E. A preliminary theory of the effects of task and environmental factors on human performance. Human Factors, 1971, 13(4), 295-344.

Wilkinson, R. Some factors influencing the effect of environmental stressors upon performance. Psychological Bulletin, 1969, 72(4), 260-272.

Will children's learning be stunted and teachers irked by low school temperatures. American School Board Journal, 1974, 161(1), 34, 43-45.

Wilson, M. J. Five climate control techniques for schools. Chicago, Ill.: Medalist Publications, Inc., 1963.

Wing, J. F. A review of the effects of high ambient temperature on mental performance. AMRL-TR-65-102, vi.

Wyon, D. P. The effects of classroom temperatures on school performance: Studies in the field. Nordisk Hygienisk Tidskrift, 1969, XLX, 20-23.

Wyon, D. P. Studies of children under imposed noise and heat stress. Ergonomics, 1970, 13(5), 598-612.

Youngling, E. W. The effects of thermal environments and sleep deprivation upon concurrent central and peripheral tasks. Dissertation Abstracts International, 1967, 28(1), 348B.

PART 5: COMPUTERIZED SEARCHES

Although hand searching an index results in the most thorough coverage of a topic, it is often convenient to use a computer service to obtain titles of relevant articles or abstracts. This section will focus on using the computer terminal and reading the resulting print-outs.

OBJECTIVE 5:

> THE PARTICIPANT WILL BE ABLE TO USE THE COMPUTER TO SEARCH ERIC AND PSYCHOLOGICAL ABSTRACTS INDEXES.

PRETEST

Conduct a computer search using the ERIC data base for one of the topics listed below. This search should include only references cited in ERIC in 1975 (Nos. 101 873 - 121 926 in CIJE and 095 254 - 110 594 in RIE). Your final product should include a listing of the descriptors run and a chronological listing of all ED and EJ numbers which appear to be relevant based on information contained in the print-out.

Topic A: The relationship between educational level and SES.

Topic B: The quality of education in mixed ethnic schools as compared to quality of education in segregated schools.

ANSWERS TO PRETEST

Check your list of descriptors and references against the models provided below.

Topic A

In order to pass the pretest for Topic A, your list of descriptors must include at least four of the seven underlined descriptors below. The other descriptors listed are representative of alternate descriptors you may have chosen to use. In addition, you may have used other descriptors which are not listed.

academic achievement/social class

academic achievement/socioeconomic status

educational mobility/socioeconomic influence

educational mobility/socioeconomic status

educational mobility/social class

educationally disadvantaged/socioeconomic status

educational disadvantaged/social class

educational opportunities/socioeconomic status

educational opportunities/social class

culturally disadvantaged/educational opportunities

culturally disadvantaged/educational mobility

educational mobility/ethnic status

educational background/socioeconomic status

educational background/social class

educational background/disadvantaged groups

academic achievement/disadvantaged groups

knowledge level/socioeconomic status

knowledge level/social class

knowledge level/disadvantaged groups

References

The minimum requirement to pass the pretest for Topic A is to identify at least four of the seven underlined descriptors above. The following lists of ED and EJ numbers are provided for you to check your reference listing. You are not required to have identified these EJ and ED numbers to pass the pretest. The listing is composed of relevant ERIC ED and EJ numbers which are classified under the required descriptors listed above. The descriptors educational background/social class and educational background/disadvantaged groups yielded no references that met the given criterion. You may have additional reference numbers listed, depending on the descriptors you used.

EJ Numbers	ED Numbers
academic achievement/social class:	
106 728	105 652
	107 368
	109 294
	110 376
academic achievement/socioeconomic status:	
108 226	096 348
113 078	097 152
113 080	097 188
120 185	097 396
	103 436
	104 031
	104 597
	104 624
	104 627
	104 913
	104 978
	105 346
	105 652
	106 042
	107 736
	108 067
	109 007
	109 294
	110 250
	110 255
	110 351
	110 578
educationally disadvantaged/socioeconomic status:	
101 863	109 495
103 377	110 578
educational opportunities/socioeconomic status:	
103 297	097 396
114 404	107 557
	110 538

	EJ Numbers	ED Numbers
educational background/socioeconomic status:		
	108 889	103 517
	113 092	103 539
		104 978
		106 380

Topic B

Descriptors:

In order to pass the pretest, your list of descriptors much include educational quality crossed with at least four of the six underlined descriptors on the right. The other descriptors listed are representative of alternate descriptors you may have chosen to use. In addition, you may have used other descriptors which are not listed.

educational quality

educational improvement

(crossed with:)

educational discrimination

racial segregation

racially balanced schools

classroom integration

biracial schools

ethnic status

school integration

nondiscriminatory education

educational equality

integration effects

References

The minimum requirement to pass the pretest is to identify the appropriate descriptors (specified as educational quality crossed with at least four of the six underlined descriptors on the right). A list of the yielding of each underlined set of descriptors is provided below. You are not required to have identified these EJ and ED numbers to pass the pretest. The listing is composed of ERIC ED and EJ numbers which, based on information contained in the computer print-out, appear to be relevant to the topic. The educational quality descriptor yielded no references that met the given criterion when crossed with either racial segregation, racially balanced schools, classroom integration, or biracial schools. You may have additional reference numbers listed, depending on the descriptors you used.

EJ Numbers	ED Numbers
educational quality/integration effects:	
105 109	
educational quality/integration effects:	
105 109	099 458

ACTIVITIES

If you have failed to complete the pretest as required, read the next four pages and take the POSTTEST.

How to Use the Computer Terminal

When using the computer to search for references related to a given topic, you may combine up to three descriptors at one time. The references which are then selected by the computer are references which are classified under each descriptor in your combination of descriptors. Thus, by using two descriptors at once, it is possible to narrow down the number of references which the computer selects. For example, if you were interested in searching the topic, "How teacher and student attitudes change over time," you could combine the following descriptors: "Changing Attitudes/Teacher Attitudes." The computer would then yield only references which are classified under both descriptors. If you were searching this same topic by hand, you would have to search each descriptor separately. The descriptor "Changing Attitudes" would contain references related to many topics with which you have no interest. Such a descriptor would include references on how-to-change attitudes, references on changing social attitudes, references on information processing, etc., etc.

So, in one respect, it is helpful to use the computer to conduct a search in that it is possible to combine descriptors and narrow the yield down to more relevant references. The computer is also a time saver. However, the computer is only as good as your descriptors, and even with good descriptor combinations, the computer may be more selective than a researcher conducting a hand search. The computer should not be depended upon for completing an exhaustive search of the literature. Only individuals can spot relevant references which may not be classified by the secondary descriptor you would use in a computer search. In most cases, single descriptors cannot be run on the computer because there are too many titles under a single descriptor. Because it is usually necessary to run two descriptors at once, run as many combinations of descriptors as possible in order to increase the probability that you will cover the field thoroughly.

In general, the computer should be used for preliminary searches and samplings of the literature in a given area. Exhaustive searches must be conducted by hand.

If you are going to conduct your search using the computer, first select descriptors from the appropriate thesaurus. Combine no more than two descriptors at once. In most cases, using three descriptors narrows the topic too much, and yields no reference citations. Select combinations of descriptors that logically cover the topic. Referring back to the example given above, you would combine:

Changing Attitudes/Teacher Attitudes
Changing Attitudes/Student Attitudes

not Teacher Attitudes/Student Attitudes

The first group of descriptors includes the main ideas of the topic, attitude change for teachers and students. The unacceptable combination (Teacher Attitudes/Student Attitudes) makes no mention of attitude change, a key idea which must be included in the search.

Before actually running the descriptors in the computer, look up the number of titles listed under any single descriptors which you are going to use. If there are over 100 titles, you must add a second descriptor. This listing is kept at the terminal. In addition, attend the demonstration in your library.* Instructions are also posted on the wall in front of the terminals. Call the library and set up an appointment to use the terminal.** You may request that the librarian run your descriptors at a designated time. However, because you are the most familiar with your topic area, when more than one descriptor is

---

[*] At the University of Texas, the demonstration takes place every Monday, 3:00-4:00.

[**] At the University of Texas, the ERIC data base is available on Tuesday and Wednesday, 8:15-11:00 a.m. Call 471-1844.

used, you should run the search yourself. Quite often, the data base will report no titles and you will need to creatively combine other descriptors. When the computer reports fewer than 20 titles, you may have the titles "shown" to you as you sit at the terminal. If you give the "show" command, however, you will have less time remaining to type in descriptors. So, it is advantageous to have all titles "printed," and picked up at the main computer center (usually a couple of hours later). On the next page is a sample page from a computer print-out.

The print-out lists abstract numbers, titles, authors, year, location of the reference (if in a journal), and all descriptors which are used to classify a particular reference. Place a check next to citations which appear to be relevant to your topic. Select on the basis of title and descriptors. If you are in doubt about a citation, select if at this point.

Finally, make a chronological listing of all abstract numbers you have selected. Make another listing of locations of all journal articles you have selected. Now you are ready to actually look at abstracts and journal articles for the final selection procedure.

EXAMPLE OF COMPUTER PRINT-OUT

```
  ED OR EJ                                  JOURNAL       YE
  NUMBER            TITLE                   CITATION      AR   AUTHOR       AUTHOR       DESCRIPTORS            DESCRIPTORS
***
                                                                                         INDIVIDUAL DEVELOP     PROGRAM PLANNING
                                                                                         MENT
                                                                                         PRESCHOOL PROGRAMS     EARLY CHILDHOOD ED
                                                                                                                UCATION
                                                                                         ENVIRONMENTAL INFL     DISADVANTAGED ENVI
                                                                                         UENCES                 RONMENT
                                                                                         COMPENSATORY EDUCA     PRESCHOOL EDUCATIO
  ED098635  COUNSELING THE RURAL DISADVA                      72   MATTHIAS              TION PROGRAMS          N
            NTAGED STUDENT.                                                              ASPIRATION             COUNSELOR CHARACTE
                                                                                                                RISTICS
                                                                                         COUNSELOR ROLE         DISADVANTAGED ENVI
                                                                                                                RONMENT
                                                                                         ECONOMIC DISADVANT     EDUCATIONAL ATTITU
                                                                                         AGEMENT                DES
                                                                                         EDUCATIONAL BACKGR     EDUCATIONAL COUNSE
                                                                                         OUND                   LING
                                                                                         RURAL EDUCATION        RURAL YOUTH
                                                                                         STUDENT PROBLEMS       YOUTH PROBLEMS
  EJ096712  A COMPARISON OF THE EFFECTS    CHILD DEVELOPMEN   74   TIZARD       REES     COGNITIVE DEVELOPM     ADOPTION
            OF ADOPTION, RESTORATION TO    T; 45; 1; 92-99                               ENT
            THE NATURAL MOTHER, AND CONT
            INUED INSTITUTIONALIZATION O
            N THE COGNITIVE DEVELOPMENT*
                                                                                         CHILD WELFARE          DISADVANTAGED ENVI
                                                                                                                RONMENT
                                                                                         INSTITUTIONALIZED      PRESCHOOL CHILDREN
                                                                                         (PERSONS)
  EJ097455  VALUE OF MILITARY EXPERIENCE   PERSONNEL JOURNA   74   SINGER       DOMITRZ  MINORITY GROUPS        EMPLOYMENT PROBLEM
             IN RECUITING THE DISADVANTA   L; 53; 5; 353-6                                                      S
            GED WORKER
                                                                                         EMPLOYMENT POTENTI     DISADVANTAGED GROU
                                                                                         AL                     PS
                                                                                         VETERANS               LABOR MARKET
                                                                                         UNEMPLOYMENT           DISADVANTAGED ENVI
  EJ097483  KATESGROVE HOUSE--A COLLECTI   ADULT EDUCATION    74   LEGGE                                        RONMENT
            VE EXPERIMENT IN HELPING THE   (LONDON); 46; 6;                              ADULT BASIC EDUCAT     DAILY LIVING SKILL
             DISADVANTAGED                  377-82                                       ION                    S
                                                                                         URBAN ENVIRONMENT      DISADVANTAGED GROU
                                                                                                                PS
                                                                                         INTERAGENCY COOPER     DISADVANTAGED ENVI
                                                                                         ATION                  RONMENT
                                                                                         SENIOR CITIZENS        PARENT EDUCATION
                                                                                         PARENT COUNSELING      COMMUNITY RESOURCE
  ED091624  FIRST, THEY ARE CHILDREN.                         74   DIVNEY                                       S
                                                                                         BODY IMAGE             CHILD DEVELOPMENT
                                                                                         DISADVANTAGED ENVI     ELEMENTARY SCHOOL
                                                                                         RONMENT                STUDENTS
```

POSTTEST

Conduct a computer search using the ERIC data base for one of the topics listed below. This search should include only 1975 references cited in ERIC in 1975 (Nos. 101 873 - 121 926 in CIJE and 095 254 - 110 594 in RIE). Your final product should include a listing of the descriptors run and a chronological listing of all ED and EJ numbers which appear to be relevant based on information contained in the print-out.

Topic A: Biographical characteristics of teachers who adopt educational innovations

Topic B: Learning outcomes of computer-assisted instruction

ANSWERS TO POSTTEST

Check your list of descriptors and references against the models provided below.

Topic A

Descriptors:

In order to pass the posttest, your list of descriptors must include educational innovation crossed with at least two of the four underlined descriptors on the right. The other descriptors listed are representative of alternate descriptors you may have chosen to use. You may have used other descriptors which are not listed.

educational innovation

diffusion

educational change

adoption (ideas)

instructional innovation

creative teaching

(crossed with:)

teacher mobility

teacher background

teacher experience

teacher qualifications

teacher salaries

teaching skills

teacher characteristics

References

The minimum requirement to pass the posttest is to find the appropriate descriptors (specified as educational innovation crossed with at least two of the four underlined descriptors on the right). A list of the yielding of each underlined descriptor is provided below. You are not required to have identified these EJ and ED numbers to pass the posttest. The listing is composed of ERIC ED and EJ numbers which, based on information contained in the computer print-out, appear to be relevant to the topic. The educational innovation descriptor yielded no references that met the given criterion when crossed with either teacher background or teacher experience. You may have additional reference numbers listed, depending on the descriptors you used.

EJ Numbers	ED Numbers
educational innovation/teacher qualifications:	
	097 303
	098 720
educational innovation/teacher characteristics:	
109 922	103 433
115 219	107 748
115 222	
120 209	

Topic B

Descriptors:

In order to pass the posttest, your list of descriptors must include computer assisted instruction crossed with at least four of the six underlined descriptors on the right. The other descriptors listed are representative of alternate descriptors you may have chosen to use. You may have used other descriptors which are not listed.

computer assisted instruction

computer oriented programs

(crossed with:)

academic performance

educational quality

achievement

low achievers

high achievers

achievement gains

knowledge level

performance

learning difficulties

learning experience

effective teaching

evaluation

program evaluation

References

The minimum requirement to pass the posttest is to find the appropriate descriptors (specified as computer assisted instruction crossed with at least four of the six underlined descriptors on the right). A list of the yielding of each underlined descriptor is provided below. You are not required to have identified these EJ and ED numbers to pass the posttest. The listing is composed of ERIC ED and EJ numbers that, based on information contained in the computer print-out, appear to be relevant to the topic. The computer assisted instruction descriptor yielded no references that met the given criterion when crossed with either academic performance, achievement gains, performance, or evaluation. You may have additional reference numbers listed, depending on the descriptors you used.

EJ Numbers	ED Numbers
computer assisted instruction/achievement:	
	099 205
	106 145
computer assisted instruction/effective teaching:	
112 926	107 239
113 344	
114 468	
114 537	

PART 6: IDENTIFYING KEY SECTIONS OF BOOKS AND RESEARCH ARTICLES

In conducting a search, you will have to read through numerous articles, abstracts, and books. Speed reading and scanning techniques will save you time. In addition, you may need to identify key sections of a research report for purposes of abstracting the report. This section of the module will offer you hints about scanning reference materials and locating crucial sections of research reports.

OBJECTIVE 6:

THE PARTICIPANT WILL BE ABLE TO
IDENTIFY QUICKLY THE KEY PASSAGES
IN REFERENCE MATERIALS.

PRETEST

Identify and underline key passages in the following reference. You should complete this task in three minutes.

A STAGE-PROCESS ANALYSIS OF THE ADOPTION OF INNOVATIONAL PROGRAMS IN SELECTED PUBLIC SECONDARY SCHOOLS.

(Order No. 69-7820)

Joseph V. Medeiros, Ed.D.
Boston University School of Education, 1967

Problem:

To determine what operational principles underlie the introduction, appraisal, trial, and adoption of innovational programs in selected Connecticut public secondary schools.

Scope and limitations of study:

1. A random sample of 30 Connecticut public secondary schools from 173 reporting innovational programs was selected on the bases of community size and grade organization. This sample yielded a total of 87 innovational programs to investigate.
2. A total of 58 staff members was interviewed, ranging in classification from assistant superintendent to classroom teacher.
3. Secondary schools were defined as any organization grade 7 or higher.
4. The sample size permitted a statistical tolerance error of 15 percent plus and minus at the five per cent level of confidence.

Procedure:

The writer submitted a questionnaire to 219 Connecticut public secondary schools to determine which had innovational programs. From among the 173 responding he took a stratified random sample of 30. He administered an interview schedule to 58 teachers and administrators at the 30 schools. The schedule, which contained both free-response and structured items, was constructed around a five-stage model of the adoption process: awareness, interest, evaluation, trial, and adoption. The writer categorized answers, made frequency counts, and applied chi-square tests of the probability significance of differences between expected and actual frequencies of adoption behavior when one hypothesizes that one type of behavior should occur as frequently as its opposite. He compiled findings under a reduction of the five-stage model of the adoption process to four stages: awareness, appraisal, trial, and adoption.

Major findings:

1. All four stages of the adoption process are in evidence in the majority of the 87 programs investigated. The trial stage is the one most liable to be by-passed.
2. Schools are individually consistent in adoption behavior but few appear to have a conscious design for controlling such behavior.
3. The most frequently perceived initiators are department heads and teachers. Principals follow closely in rank. Supervisors, and administrators above the rank of principal, are relatively infrequent initiators.
4. Pupil need is most frequently cited as the stimulus to innovation.
5. Initiators become aware of innovations most frequently by "internal participants," persons having direct connection with the legal or social system of schools.
6. Community size and staff-pupil ratio do not relate significantly to modes of adoption behavior.
7. Grade organization relates significantly (5 per cent level of confidence) to modes of adoption behavior. Senior hi staffs (grades 9-12 or 10-12) are more likely than others to be influenced by internal participants at the Awareness Stage they use more of the available investigative approaches at the Appraisal Stage; and they are subject to more influence at th Adoption Stage.
8. Pupil and staff reactions are most frequently perceive as influences on the decision to adopt.
9. Principals are perceived as the primary decision mak at the Adoption Stage of the innovative process. Superintende and boards of education are infrequently perceived as decisio makers.

Implications:

1. Every stage of the adoption process has a number of strategies. Staffs should know and make wide use of these strategies to adduce all the information and data relevant to decision-making.
2. Whatever the approach, staffs should have an operatio design for the adopting of new programs. That design should describe sequential activities leading from the investigating and analysis of potential innovations to a clear-cut set of eva uative criteria for their adoption. The four-stage process could serve as an operational model of practical value.

M $3.00; X $9.70. 211 pages

Copies of the article are available from Xerox University Microfilms, Ann Arbor, Michigan, in microfilm and xerographic form. (Order number 69-7820)

ANSWERS TO PRETEST

Compare your underlining with the model provided on the next page. In order to pass this pretest, you must have missed no more than five of the lines which are underlined in the model. In addition, you may have underlined no more than five additional lines. If you have not completed the task as required, or in the appropriate length of time, complete the ACTIVITIES and take the POSTTEST.

A STAGE-PROCESS ANALYSIS OF THE ADOPTION OF INNOVATIONAL PROGRAMS IN SELECTED PUBLIC SECONDARY SCHOOLS.

(Order No. 69-7820)

Joseph V. Medeiros, Ed.D.
Boston University School of Education, 1967

Problem:

To determine what operational principles underlie the introduction, appraisal, trial, and adoption of innovational programs in selected Connecticut public secondary schools.

Scope and limitations of study:

1. A random sample of 30 Connecticut public secondary schools from 173 reporting innovational programs was selected on the bases of community size and grade organization. This sample yielded a total of 87 innovational programs to investigate.
2. A total of 58 staff members was interviewed, ranging in classification from assistant superintendent to classroom teacher.
3. Secondary schools were defined as any organization grade 7 or higher.
4. The sample size permitted a statistical tolerance error of 15 percent plus and minus at the five per cent level of confidence.

Procedure:

The writer submitted a questionnaire to 219 Connecticut public secondary schools to determine which had innovational programs. From among the 173 responding he took a stratified random sample of 30. He administered an interview schedule to 58 teachers and administrators at the 30 schools. The schedule, which contained both free-response and structured items, was constructed around a five-stage model of the adoption process: awareness, interest, evaluation, trial, and adoption. The writer categorized answers, made frequency counts, and applied chi-square tests of the probability significance of differences between expected and actual frequencies of adoption behavior when one hypothesizes that one type of behavior should occur as frequently as its opposite. He compiled findings under a reduction of the five-stage model of the adoption process to four stages: awareness, appraisal, trial, and adoption.

Major findings:

1. All four stages of the adoption process are in evidence in the majority of the 87 programs investigated. The trial stage is the one most liable to be by-passed.
2. Schools are individually consistent in adoption behavior but few appear to have a conscious design for controlling such behavior.
3. The most frequently perceived initiators are department heads and teachers. Principals follow closely in rank. Supervisors, and administrators above the rank of principal, are relatively infrequent initiators.
4. Pupil need is most frequently cited as the stimulus to innovation.
5. Initiators become aware of innovations most frequently by "internal participants," persons having direct connection with the legal or social system of schools.
6. Community size and staff-pupil ratio do not relate significantly to modes of adoption behavior.
7. Grade organization relates significantly (5 per cent level of confidence) to modes of adoption behavior. Senior hi staffs (grades 9-12 or 10-12) are more likely than others to be influenced by internal participants at the Awareness Stage they use more of the available investigative approaches at the Appraisal Stage; and they are subject to more influence at th Adoption Stage.
8. Pupil and staff reactions are most frequently perceive as influences on the decision to adopt.
9. Principals are perceived as the primary decision mak at the Adoption Stage of the innovative process. Superintende and boards of education are infrequently perceived as decisio makers.

Implications:

1. Every stage of the adoption process has a number of strategies. Staffs should know and make wide use of these strategies to adduce all the information and data relevant to decision-making.
2. Whatever the approach, staffs should have an operatio design for the adopting of new programs. That design should describe sequential activities leading from the investigating and analysis of potential innovations to a clear-cut set of eva uative criteria for their adoption. The four-stage process could serve as an operational model of practical value.

M $3.00; X $9.70. 211 pages

Copies of the article are available from Xerox University Microfilms, Ann Arbor, Michigan, in microfilm and xerographic form. (Order number 69-7820)

ACTIVITIES

The guidelines on the following pages should help you reduce the time you spend on a reference and help you identify key passages. If you want additional information or practice in speed reading, see the following references:

Gilbert, D. *Power and speed in reading*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956.

Larson, J. *A guide to rapid reading*. New York: Alfred Knopf, Inc., 1971.

Leedy, P. *Read with speed and precision*. New York: McGraw-Hill, 1963.

Maxwell, M. J. *Skimming and scanning improvement*. New York: McGraw-Hill, 1969.

Miller, L. *Increasing reading efficiency*. New York: Holt Rinehart and Co., 1956.

Miller, L. L. *Maintaining reading efficiency*. Revised edition. Laramie, Wyoming: Snowy Ridge Printers, 1966.

Raygor, A., & Schick, G. *Reading at efficient rates. A program for self instruction*. New York: McGraw-Hill, 1969.

Reading improvement program. A practice reading book. St Louis: Perceptual Development Labs, 1956.

Seven reading strategies. Greenwich, Connecticut: Baldridge Reading Instruction Materials, Inc., 1970.

Smith, N. *Read faster*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1958.

Analyzing Research Articles

1. Read the abstract (if available) at the beginning of the article.
2. Read the first few paragraphs carefully until you understand the thesis of the author and the context in which it is presented.
3. Scan the next few sections very quickly, noting sentences which define the subjects, particular characteristics of the population group, variables being measured, and kinds of instruments used (pencil and paper, observational, etc.).
4. Read the discussion section at the end of the article, noting any major findings.

If you are underlining or writing an abstract, you should note statements defining the problem, populations used, variables being measured, type of instruments used, key findings, and relevant discussion. Do not concern yourself with methodology, unless that is the focus of the references, in which case, turn the reference over to someone competent to evaluate research design or statistical analyses.

Analyzing General Theoretical Articles

1. Check through the reference materials for subheadings.
2. Read the first few paragraphs to become familiar with the author's thesis and the context in which it is presented.
3. Read the first sentence in every paragraph.
4. If you are underlining, underline a skeletal structure which explains key thoughts and the development of the author's thesis. If you are abstracting, use this skeletal outline to write the abstract.

Analyzing Books

1. Read the table of contents to identify key chapters.
2. Turn to key chapters and read the subheadings.
3. Read the first few paragraphs carefully to become familiar with the author's thesis and the context in which it is presented.
4. Scan the remainder of the chapter, reading the first sentence of each paragraph. Note any related references cited.
5. Read the concluding section.

If you are underlining or abstracting, note any statements that sum up the state of the art, current problems in the area, evidence of any general trend, key arguments or proposals.

POSTTEST

Identify and underline key passages in the following references. You should complete this task in six minutes.

ABC'S OF THE SYSTEMS APPROACH

JACK BLENDINGER

University of California — LaJolla

Public education needs revision and teachers are accepting the challenge to become the agents of change. In simplest terms that is what teacher militancy is all about. Yesterday's "big daddy" administration and its resultant stifling bureaucracy is no longer relevant. But to be effective in exercising increased power in policy formulation and decision-making, two processes once reserved exclusively for management, teachers need to become more knowledgeable in management theory. This brief paper is written as an introductory primer for the teacher who would like to gain a better understanding of the systems approach, one of management's newest strategies which is currently being hailed in today's professional literature as a potential panacea for coping with rising costs, student revolt, black and brown separatism, teacher power, and public disaffection for support of the schools. The paper's concern centers around three basic questions:

What is a system?
What is the systems approach?
How does the systems approach work?

What is a System?

A system is an organized "something" that has direction to it and some degree of internal unity. The structure or organization of an orderly whole which clearly shows the interrelationships of the parts to each other and to the whole itself. An organization, e.g., a school district, or any facet of an organization can be defined as a system.

Essentially a system must consist of four criteria. First, there must be a structure or organization. Second, the structure or organization must be conceptualized as an orderly whole. Third, the parts of the whole must relate to each other. Finally, the parts must also relate to the whole. Furthermore, a system may be described by drawing a boundary around it within which everything is a part or element of that particular system.

What is the Systems Approach?

A systems approach is a way of seeing one's environment. It is an attitude of mind. The concerns of the systems approach are with interrelated parts and with how these parts together accomplish the purpose for which the system exists. The techniques of analysis and design are central to a systems approach.

Systems analysis is the process of breaking down or taking apart an existing whole into its constituent parts or elements for the purpose of depicting the relationship of the parts to the whole and to each other. Analysis involves the reduction of complex entities into their component segments so that each segment can be studied. Since any component can be further broken down into its constituent parts and those segments once again broken down, the level of refinement is arbitrary.

Design, the other important technique in a systems approach, differs from analysis in that it is a putting together, or a synthesis, rather than a taking apart. Analysis must precede synthesis because design decisions cannot be relevant or practical without prior specification of appropriate tasks to achieve specific purposes.

In addition to the techniques of analysis and design, a systems approach calls for systematic documentation and evaluation. Documentation leads to empirically based decision-making since any course of action needs to be supported by written statements on what is used as data, what is assumed, and what logical sequence is followed in the reasoning. Documentation also provides a basis for careful examination of the premises that underlie decisions. Since every system has outputs, a systems approach stresses evaluation of all output even if it must be done subjectively rather than quantitatively. Systematic review and assessment of the product, e.g., student, is carried on as a routine procedure because a systems approach requires commitment to evaluation as a continuous process.

How Does The Systems Approach Work?

The application of the systems approach to educational management is unlimited, but regardless of whether it is applied to comprehensive planning, policy-making, curriculum design, facility development, personnel management, instructional media usage, budgeting, etc. the basic steps and sequence are similar.

Since analysis precedes design, the technique of systems analysis is employed first. The primary concern in using systems analysis calls for the recognition of needs which is simply the recognition of the discrepancy between "what is" and "what is required." Secondly, determined needs must be expressed as goals. A goal is a statement of how to "reduce or eliminate" the identified discrepancy. Moreover, goals needs to be specifically stated in terms of the state which exists after the operation has been successfully completed. Thirdly, constraints, limits beyond which something cannot or is not permitted to go, need to be identified. Constraints include federal, state, and local legalities; attitudes prevalent in the community; the demands of teacher organization; time, money, personnel, and facilities; or anything else which would prevent accomplishment of a goal unless resolved. And fourthly, tasks need to be determined. The term "tasks" refers to the work or jobs which need to be performed in order to accomplish the stated goals.

Once a preliminary systems analysis has been made, systems design is employed. Essentially, design calls for programs that can accomplish the stated tasks and for budget appropriations to implement the planned programs. In analytical management, to design means to program. Thus, the designing process is a programming process. The term "program" implies a process of doing, i.e., performing a function or activity to produce an effect. The development of an array of programs and their subsequent activities intended to meet specified goals is an important concern in systems design.

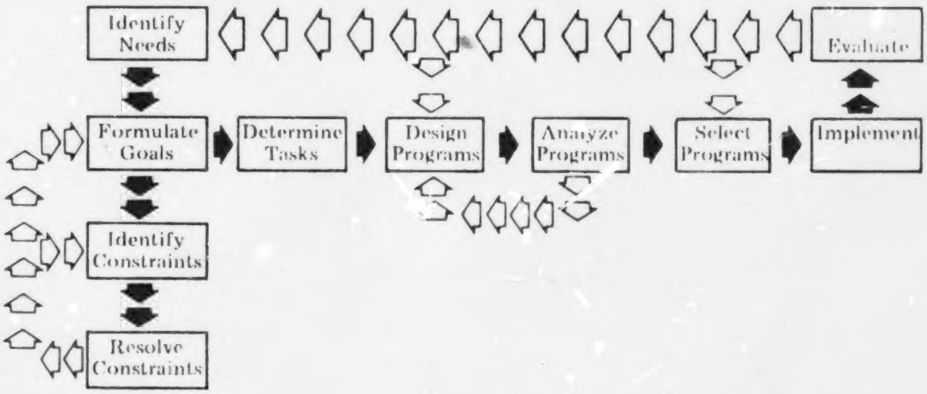
Although analysis precedes design, systems design is not a one way path preceded neatly by analysis. The systems approach implies a combined action. Analysis is used throughout the design process. A systems approach represents a continuous and repeated progressive comparison process of check, compare, adjust, recheck, recompare, and readjust, etc. which is best referred to as feedback. System feedback is important because design is actually a continuous process of compromise between requirement specifications and analysis of alternative ways, i.e., programs, for successfully meeting the specifications. Analysis of proposed programs in terms of cost and effectiveness is central to the systems approach. The process of analytical design calls for a continuous search of alternative ways for meeting specified goals. For costing purposes, the total estimated cost, i.e., personnel, material, and facilities, of each program alternative are considered not only for the first year but also projected for several subsequent years.

After programs, i.e., means to accomplish ends, have been identified and analyzed in terms of cost and effectiveness, the most optimum alternative is selected, implemented, and evaluated. If the course of action selected does not meet the criteria of what is required, then the processes of analysis and design are repeated. In systems jargon, this is called "debugging." Feedback provided through evaluation is an important function of a systems approach because the cyclical design of such an approach implies that a self-correcting strategy is being applied and that all relevant variables and alternatives are continuously being considered.

In summary, a systems approach is a formal procedure, consisting of analysis and design, for educational management which implies that a self-correcting strategy is being systematically applied. This approach requires that a need, e.g., problem, be clearly recognized and specified before steps are taken to resolve it.

THE SYSTEMS APPROACH: ANALYSIS, DESIGN, AND EVALUATION

Figure 1. The Systems Approach: Analysis, Design, and Evaluation. Rectangular boxes signify separate functions or steps. The unbroken lines between the boxes show forward flow or progression while the broken lines denote feedback for possible revision.



LEARNING AIDS

A study of factors which help and hinder children's learning shows that learning is made easier by:

Healthful physical conditions.

A rich curriculum.

A rhythm of work and play.

Families having confidence.

Success experiences which encourage new adventure.

Support of friends.

Confidence in teacher.

Mutual confidence of parents and teacher.

ANSWERS TO POSTTEST

Compare your underlining with the model on the following pages. In order to pass this posttest, you must have missed no more than five ideas or statements that are underlined in the model in the stated amount of time. In addition, you may have underlined no more than five additional ideas or statements.

ABC'S OF THE SYSTEMS APPROACH

JACK BLENDINGER

University of California — LaJolla

Public education needs revision and teachers are accepting the challenge to become the agents of change. In simplest terms that is what teacher militancy is all about. Yesterday's "big daddy" administration and its resultant stifling bureaucracy is no longer relevant. But to be effective in exercising increased power in policy formulation and decision-making, two processes once reserved exclusively for management, teachers need to become more knowledgeable in management theory. This brief paper is written as an introductory primer for the teacher who would like to gain a better understanding of the systems approach, one of management's newest strategies which is currently being hailed in today's professional literature as a potential panacea for coping with rising costs, student revolt, black and brown separatism, teacher power, and public disaffection for support of the schools. The paper's concern centers around three basic questions:

What is a system?
What is the systems approach?
How does the systems approach work?

What is a System?

A system is an organized "something" that has direction to it and some degree of internal unity. The structure or organization of an orderly whole which clearly shows the interrelationships of the parts to each other and to the whole itself. An organization, e.g., a school district, or any facet of an organization can be defined as a system.

Essentially a system must consist of four criteria. First, there must be a structure or organization. Second, the structure or organization must be conceptualized as an orderly whole. Third, the parts of the whole must relate to each other. Finally, the parts must also relate to the whole. Furthermore, a system may be described by drawing a boundary around it within which everything is a part or element of that particular system.

What is the Systems Approach?

A systems approach is a way of seeing one's environment. It is an attitude of mind. The concerns of the systems approach are with interrelated parts and with how these parts together accomplish the purpose for which the system exists. The techniques of analysis and design are central to a systems approach.

Systems analysis is the process of breaking down or taking apart an existing whole into its constituent parts or elements for the purpose of depicting the relationship of the parts to the whole and to each other. Analysis involves the reduction of complex entities into their component segments so that each segment can be studied. Since any component can be further broken down into its constituent parts and those segments once again broken down, the level of refinement is arbitrary.

Design, the other important technique in a systems approach, differs from analysis in that it is a putting together, or a synthesis, rather than a taking apart. Analysis must precede synthesis because design decisions cannot be relevant or practical without prior specification of appropriate tasks to achieve specific purposes.

In addition to the techniques of analysis and design, a systems approach calls for systematic documentation and evaluation. Documentation leads to empirically based decision-making since any course of action needs to be supported by written statements on what is used as data, what is assumed, and what logical sequence is followed in the reasoning. Documentation also provides a basis for careful examination of the premises that underlie decisions. Since every system has outputs, a systems approach stresses evaluation of all output even if it must be done subjectively rather than quantitatively. Systematic review and assessment of the product, e.g., student, is carried on as a routine procedure because a systems approach requires commitment to evaluation as a continuous process.

How Does The Systems Approach Work?

The application of the systems approach to educational management is unlimited, but regardless of whether it is applied to comprehensive planning, policy-making, curriculum design, facility development, personnel management, instructional media usage, budgeting, etc. the basic steps and sequence are similar.

Since analysis precedes design, the technique of systems analysis is employed first. The primary concern in using systems analysis calls for the recognition of needs which is simply the recognition of the discrepancy between "what is" and "what is required." Secondly, determined needs must be expressed as goals. A goal is a statement of how to "reduce or eliminate" the identified discrepancy. Moreover, goals needs to be specifically stated in terms of the state which exists after the operation has been successfully completed. Thirdly, constraints, limits beyond which something cannot or is not permitted to go, need to be identified. Constraints include federal, state, and local legalities; attitudes prevalent in the community; the demands of teacher organization; time, money, personnel, and facilities; or anything else which would prevent accomplishment of a goal unless resolved. And fourthly, tasks need to be determined. The term "tasks" refers to the work or jobs which need to be performed in order to accomplish the stated goals.

Once a preliminary systems analysis has been made, systems design is employed. Essentially, design calls for programs that can accomplish the stated tasks and for budget appropriations to implement the planned programs. In analytical management, to design means to program. Thus, the designing process is a programming process. The term "program" implies a process of doing, i.e., performing a function or activity to produce an effect. The development of an array of programs and their subsequent activities intended to meet specified goals is an important concern in systems design.

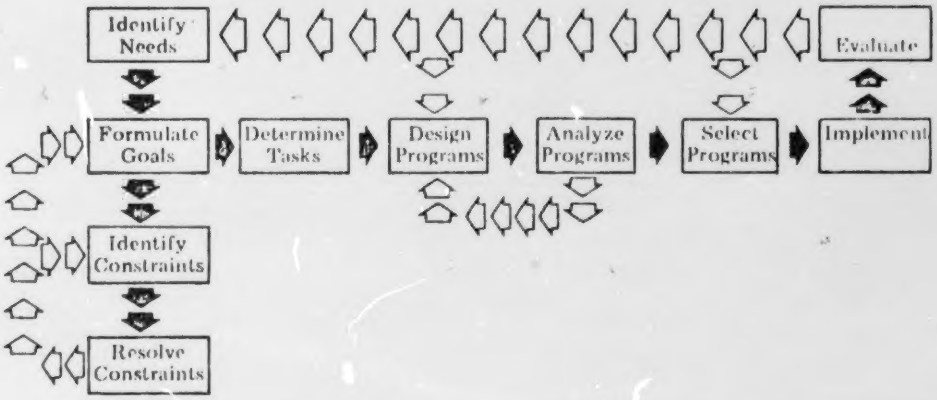
Although analysis precedes design, systems design is not a one-way path preceded neatly by analysis. The systems approach implies a combined action. Analysis is used throughout the design process. A systems approach represents a continuous and repeated progressive comparison process of check, compare, adjust, recheck, recompare, and readjust, etc. which is best referred to as feedback. System feedback is important because design is actually a continuous process of compromise between requirement specifications and analysis of alternative ways, i.e., programs, for successfully meeting the specifications. Analysis of proposed programs in terms of cost and effectiveness is central to the systems approach. The process of analytical design calls for a continuous search of alternative ways for meeting specified goals. For costing purposes, the total estimated cost, i.e., personnel, material, and facilities, of each program alternative are considered not only for the first year but also projected for several subsequent years.

After programs, i.e., means to accomplish ends, have been identified and analyzed in terms of cost and effectiveness, the most optimum alternative is selected, implemented, and evaluated. If the course of action selected does not meet the criteria of what is required, then the processes of analysis and design are repeated. In systems jargon, this is called "debugging." Feedback provided through evaluation is an important function of a systems approach because the cyclical design of such an approach implies that a self-correcting strategy is being applied and that all relevant variables and alternatives are continuously being considered.

In summary, a systems approach is a formal procedure, consisting of analysis and design, for educational management which implies that a self-correcting strategy is being systematically applied. This approach requires that a need, e.g., problem, be clearly recognized and specified before steps are taken to resolve it.

THE SYSTEMS APPROACH: ANALYSIS, DESIGN, AND EVALUATION

Figure 1. The Systems Approach: Analysis, Design, and Evaluation. Rectangular boxes signify separate functions or steps. The unbroken lines between the boxes show forward flow or progression while the broken lines denote feedback for possible revision.



LEARNING AIDS

A study of factors which help and hinder children's learning shows that learning is made easier by:

Healthful physical conditions.

A rich curriculum.

A rhythm of work and play.

Families having confidence.

Success experiences which encourage new adventure.

Support of friends.

Confidence in teacher.

Mutual confidence of parents and teacher.

PART 7: PROCESSING REFERENCE MATERIALS

The manner in which you physically process references will vary depending on your particular needs. This section has been included in the module specifically for researchers who are conducting library searches for someone else. This section of the module presents a systematic way of physically processing references. No pretest would be appropriate for this section, since this particular method is unique to the R&D Center for Teacher Education at the University of Texas.

OBJECTIVE 7:

THE PARTICIPANT WILL BE ABLE TO PHYSICALLY PROCESS REFERENCES ACCORDING TO STATED CRITERIA.

ACTIVITIES:

Read the following page and complete the posttest.

PROCESSING REFERENCE MATERIAL

The following listing of steps describe how you will handle the reference material you locate in the library.

1. Xerox the article, checking to see that every page is readable.
2. Jot down full reference information on the first xeroxed page.
3. Write a notecard in APA format for each reference. Write the notecards legibly. If you can type, type them. If you have any questions concerning the format, ask.
4. Alphabetize the references (keep them in this order throughout the remainder of these steps).
5. Cut and paste the article or abstracts. Cut off all borders and paste each page on a new sheet of paper. Do not cut off page numbers. Use a stylo against a ruler on a hard cardboard backing for cutting straight lines. Use only a dab of glue in each corner. Stack these pages up in alphabetical order, with notecards inserted in the front of each article.
6. Xerox the cut and pasted version (the original) and the notecard. When xeroxing, start with the last page of the article and work forward, since the machine stacks them in a backwards order.
7. Go through the stack of originals and the stack of copies, page by page, checking for correspondence and switching cards. The original card should now be on top of the copied article and the copy of the card should be on top of the original (cut and pasted) reference.
8. Clip the card on the first page of the copy and staple the copy together in the upper left hand corner (do not staple through the card and do not clip the card to more than the first page).
9. Clip the original and the copy of the card all together in the upper left hand corner. Do not staple the original.

POSTTEST

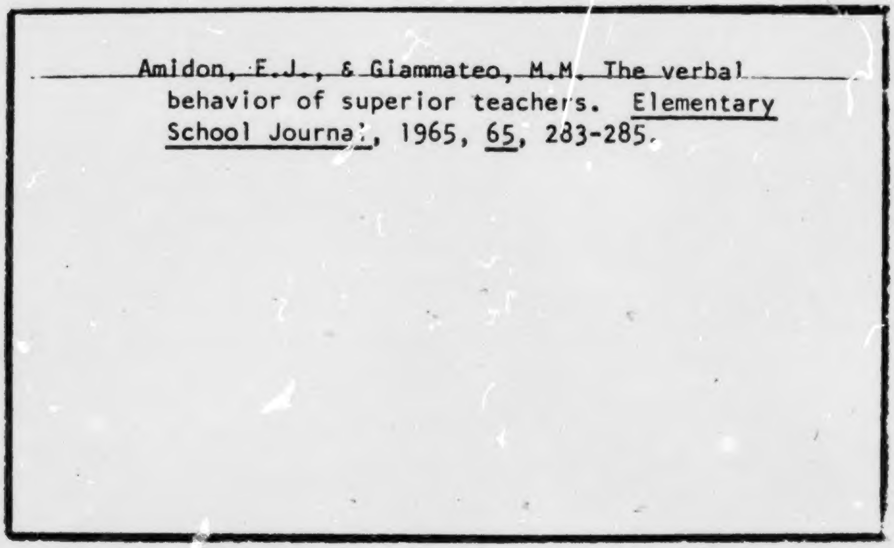
Locate and process the following references according to the procedures described in the ACTIVITIES section:

An article by E. J. Amidon and M. M. Giammattes which appeared in the Elementary School Journal, in 1965, Volume 65, pp. 283-285. The title is "The verbal behavior of superior teachers."

An abstract of a dissertation by L. F. Campbell which appeared in Series A of Dissertation Abstracts International, 1968, Volume 29, Issue 6. The title is "A study of pupil gain scores as a criterion of teacher effectiveness."

ANSWERS TO POSTTEST

Your originals and copies should correspond exactly with the originals and copies presented in the following model. Examples of originals are presented first, and then the copies.



Amidon, E.J., & Giammateo, M.M. The verbal behavior of superior teachers. *Elementary School Journal*, 1965, *65*, 283-285.

Xerox of APA notecard.

EDMUND AMIDON
MICHAEL GIAMMATTEO
Temple University

The Verbal Behavior of Superior Teachers

Are certain patterns of verbal behavior characteristic of superior teachers? To explore the question, the authors conducted a study involving 153 elementary-school teachers from eleven suburban districts in Pennsylvania.

Administrators and supervisors were asked to identify superior teachers in their districts, and the top three teachers from those identified in each district were observed as superior or "master" teachers. The procedure gave a sample of thirty-three teachers. One hundred and twenty teachers were then selected at random from the eleven districts to provide an average group.

All 153 teachers were observed by a trained observer who used the Flanders system of interaction analysis (1). This system classifies verbal behavior in ten categories. In our study seven of these categories were used to classify teachers' talk. These categories were *acceptance of feeling, praise or encouragement, acceptance and use of student ideas, questions, lecture, direction-giving,* and *criticism*. Two categories were used to classify pupils' talk. These categories were *response to the teacher* and *talk initiated by the pupil*. The tenth category was *silence or confusion*.

The first four categories of teacher talk indicate indirect influence by the teacher. *Lecture, direction-giving,* and *criticism* indicate direct influence by the teacher.

The observer categorized the verbal behavior of teachers and pupils during the language arts period, which varied in length from thirty to forty-five minutes. At three-second intervals the observer wrote down the appropriate category, indicating it by a number. No class was observed before or after any special event; and no substitute, special, or visiting teachers were observed.

A profile of the verbal patterns of the superior teachers was prepared, and data on the 120 other teachers were compiled by grade and reported as normative data. The interaction patterns of the randomly selected group and of the superior group were compared. The researchers also compared the frequency of each category in the Flanders system and the fre-

Boundary of cut-out original xerox copy pasted on blank sheet of paper.

quency of total verbal patterns—indirect and direct.

Statements indicating acceptance of feeling were made about three times as much by teachers identified as superior as by the normative group. However, both groups rarely made statements that fell into this category.

Statements of praise and encouragement were made about equally by both groups, but the superior teachers gave praise after pupil-initiated ideas and gave reasons for praise more often than the normative group did.

Statements that indicated acceptance and use of pupils' ideas were used more than twice as much by the superior teachers as by the average teachers. Superior teachers used this category more than three and a half times as often as average teachers did in response to pupil-initiated ideas. The average teachers tended to accept pupils' ideas given in response to direct questions from the teacher.

Questions represented about a fifth of all talk in each lesson observed in both groups, but the superior teachers asked twice as many questions that were broad in nature and demanded pupil-initiated talk. The average teachers tended to ask narrow questions that called for predictable responses ("What is two times two?"). The superior teachers used questions as a means of controlling noise and clarifying ideas about twice as often as the normative group did.

Lecture in a continuous fashion was used more by the average group of teachers than by the superior group, but the total lecture time accounted for about 40 per cent of teacher talk for both groups. The superior teachers were interrupted more frequently by questions during their lectures than the average teachers were.

Direction-giving was used twice as much by the average group, and their directions were more likely to elicit silence from pupils.

Criticism was used as a technique for controlling pupils' noise about twice as much by the average group as by the superior group, but both groups used criticism sparingly. Direction-giving followed by criticism, which usually indicates discipline problems, appeared about twice as frequently in the verbal patterns of the normative group as in the superior group.

Patterns of pupils' statements were markedly different in the two groups. There were twice as many pupil-initiated statements in the classes taught by the superior teachers as in those taught by the average teachers. Pupils participated more than 52 per cent of the time in the classes of the superior teachers, and about 40 per cent of the time in the classes of the average teachers.

The category *silence or confusion* appeared more than twice as often in reports on classes taught by the normative group of teachers, as in reports on classes taught by the superior group.

In summary, the results indicate that the verbal-behavior patterns of superior teachers differ substantially from those of average teachers. The superior teachers talked about 40 per cent of their total class time, whil the normative group talked about 52 per cent of the time. The superior teachers were more accepting of pupil-initiated ideas, tended to encourage these ideas more, and made a greater effort to build on these ideas than the average teachers did. The superior teachers dominated their classrooms less, used indirect verbal behavior more, and used direction-giving and criticism less than the normative group of teachers did. The superior teachers asked questions that were broader in nature than those asked by the normative group, and their lectures were interrupted more by questions from the pupils. There was about 12 per cent more pupil participation in the classes of the superior teachers than in the classes of the average teachers.

Taken by themselves, the results of this study might indicate only that administrators and supervisors tend to favor the kind of teaching behavior attributed here to superior teachers. However, a large-scale study conducted by Flanders, in which he related pupil achievement to teacher's patterns of verbal behavior, lends support to the findings of this study (2, 3).

Flanders found in his study that the teachers of high-achieving classes accepted, clarified, and used pupil ideas significantly more; criticized significantly less; and encouraged significantly more pupil-initiated talk than teachers of low-achieving classes did.

As a result of his research, Flanders developed what he calls "the rule of two-thirds." This rule states that in the average classroom someone is talking two-thirds of the time; two-thirds of that time the person talking is the teacher; and two-thirds of the time that the teacher talks, he is using direct influence (lecture, direction-giving, criticism).

However, the rule of two-thirds was modified for teachers of the high-achieving children and teachers of the low-achieving children. The first part of the rule, that two-thirds of the time someone is talking, held for both groups, but the teachers of the low-achieving groups talked about 80 per cent of this time, while teachers of the high-achieving groups talked about 55 per cent of this time. In the low-achieving groups, teachers used direct influence about 80 per cent of the time, while the teachers of the high-achieving groups used direct influence about 50 per cent of the time.

The results of the present study, as well as the results of Flanders' study, would seem to indicate that verbal-behavior patterns of superior teachers can be identified and that these patterns do differ markedly from the verbal-behavior patterns of other teachers.

REFERENCES

1. E. J. Amidon and N. A. Flanders. *The Role of the Teacher in the Classroom.* Minneapolis: Paul S. Amidon and Associates, 1962.
2. E. J. Amidon and N. A. Flanders. "The Effects of Direct and Indirect Teacher Influence on Dependent-prone Students Learning Geometry," *Journal of Educational Psychology*, LII (December, 1961), 286-91.
3. N. A. Flanders. *Teacher Influence: Pupil Attitudes and Achievement, Final Report; 1960;* University of Minnesota; Project 397. Washington, D.C.: United States Department of Health, Education and Welfare; Cooperative Research Program; Office of Education, 1960.

Amidon, E.J., & Giammate., M.M. The verbal behavior of superior teachers. Elementary School Journal, 1965, 65, 283-285.

EDMUND AMIDON
MICHAEL GIAMMATTEO
Temple University

The Verbal Behavior of Superior Teachers

Xerox of
notecard
clipped to
first page
of article.

Are certain patterns of verbal behavior characteristic of superior teachers? To explore the question, the authors conducted a study involving 153 elementary-school teachers from eleven suburban districts in Pennsylvania.

Administrators and supervisors were asked to identify superior teachers in their districts, and the top three teachers from those identified in each district were observed as superior or "master" teachers. The procedure gave a sample of thirty-three teachers. One hundred and twenty teachers were then selected at random from the eleven districts to provide an average group.

All 153 teachers were observed by a trained observer who used the Flanders system of interaction analysis (1). This system classifies verbal behavior in ten categories. In our study seven of these categories were used to classify teachers' talk. These categories were *acceptance of feeling, praise or encouragement, acceptance and use of student ideas, questions, lecture, direction-giving,* and *criticism.* Two categories were used to classify pupils' talk. These categories were *response to the teacher* and *talk initiated by the pupil.* The tenth category was *silence or confusion.*

The first four categories of teacher talk indicate indirect influence by the teacher. *Lecture, direction-giving,* and *criticism* indicate direct influence by the teacher.

The observer categorized the verbal behavior of teachers and pupils during the language arts period, which varied in length from thirty to forty-five minutes. At three-second intervals the observer wrote down the appropriate category, indicating it by a number. No class was observed before or after any special event; and no substitute, special, or visiting teachers were observed.

A profile of the verbal patterns of the superior teachers was prepared, and data on the 120 other teachers were compiled by grade and reported as normative data. The interaction patterns of the randomly selected group and of the superior group were compared. The researchers also compared the frequency of each category in the Flanders system and the frequency of total verbal patterns—indirect and direct.

Statements indicating acceptance of feeling were made about three times as much by teachers identified as superior as by the normative group. However, both groups rarely made statements that fell into this category.

Statements of praise and encouragement were made about equally by both groups, but the superior teachers gave praise after pupil-initiated ideas and gave reasons for praise more often than the normative group did.

Statements that indicated acceptance and use of pupils' ideas were used more than twice as much by the superior teachers as by the average teachers. Superior teachers used this category more than three and a half times as often as average teachers did in response to pupil-initiated ideas. The average teachers tended to accept pupils' ideas given in response to direct questions from the teacher.

Questions represented about a fifth of all talk in each lesson observed in both groups, but the superior teachers asked twice as many questions that were broad in nature and demanded pupil-initiated talk. The average teachers tended to ask narrow questions that called for predictable responses ("What is two times two?"). The superior teachers used questions as a means of controlling noise and clarifying ideas about twice as often as the normative group did.

Lecture in a continuous fashion was used more by the average group of teachers than by the superior group, but the total lecture time accounted for about 40 per cent of teacher talk for both groups. The superior teachers were interrupted more frequently by questions during their lectures than the average teachers were.

Direction-giving was used twice as much by the average group, and their directions were more likely to elicit silence from pupils.

Criticism was used as a technique for controlling pupils' noise about twice as much by the average group as by the superior group; but both groups used criticism sparingly. Direction-giving followed by criticism, which usually indicates discipline problems, appeared about twice as frequently in the verbal patterns of the normative group as in the superior group.

Patterns of pupils' statements were markedly different in the two groups. There were twice as many pupil-initiated statements in the classes taught by the superior teachers as in those taught by the average teachers. Pupils participated more than 52 per cent of the time in the classes of the superior teachers, and about 40 per cent of the time in the classes of the average teachers.

The category *silence or confusion* appeared more than twice as often in reports on classes taught by the normative group of teachers, as in reports on classes taught by the superior group.

In summary, the results indicate that the verbal-behavior patterns of superior teachers differ substantially from those of average teachers. The superior teachers talked about 40 per cent of their total class time, while the normative group talked about 52 per cent of the time. The superior teachers were more accepting of pupil-initiated ideas, tended to encourage these ideas more, and made a greater effort to build on these ideas than the average teachers did. The superior teachers dominated their classrooms less, used indirect verbal behavior more, and used direction-giving and criticism less than the normative group of teachers did. The superior teachers asked questions that were broader in nature than those asked by the normative group, and their lectures were interrupted more by questions from the pupils. There was about 12 per cent more pupil participation in the classes of the superior teachers than in the classes of the average teachers.

Taken by themselves, the results of this study might indicate only that administrators and supervisors tend to favor the kind of teaching behavior attributed here to superior teachers. However, a large-scale study conducted by Flanders, in which he related pupil achievement to teacher's patterns of verbal behavior, lends support to the findings of this study (2, 3).

Flanders found in his study that the teachers of high-achieving classes accepted, clarified, and used pupil ideas significantly more; criticized significantly less; and encouraged significantly more pupil-initiated talk than teachers of low-achieving classes did.

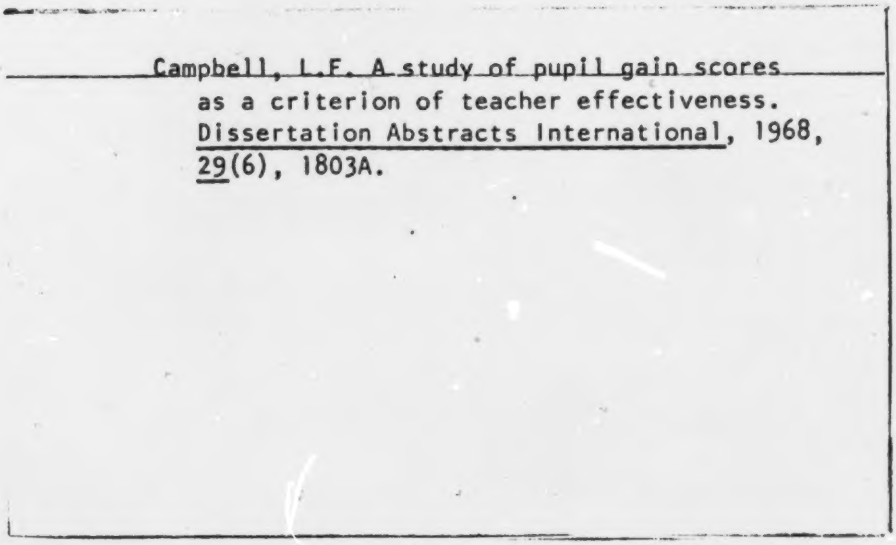
As a result of his research, Flanders developed what he calls "the rule of two-thirds." This rule states that in the average classroom someone is talking two-thirds of the time; two-thirds of that time the person talking is the teacher; and two-thirds of the time that the teacher talks, he is using direct influence (lecture, direction-giving, criticism).

However, the rule of two-thirds was modified for teachers of the high-achieving children and teachers of the low-achieving children. The first part of the rule, that two-thirds of the time someone is talking, held for both groups, but the teachers of the low-achieving groups talked about 80 per cent of this time, while teachers of the high-achieving groups talked about 55 per cent of this time. In the low-achieving groups, teachers used direct influence about 80 per cent of the time, while the teachers of the high-achieving groups used direct influence about 50 per cent of the time.

The results of the present study, as well as the results of Flanders' study, would seem to indicate that verbal-behavior patterns of superior teachers can be identified and that these patterns do differ markedly from the verbal-behavior patterns of other teachers.

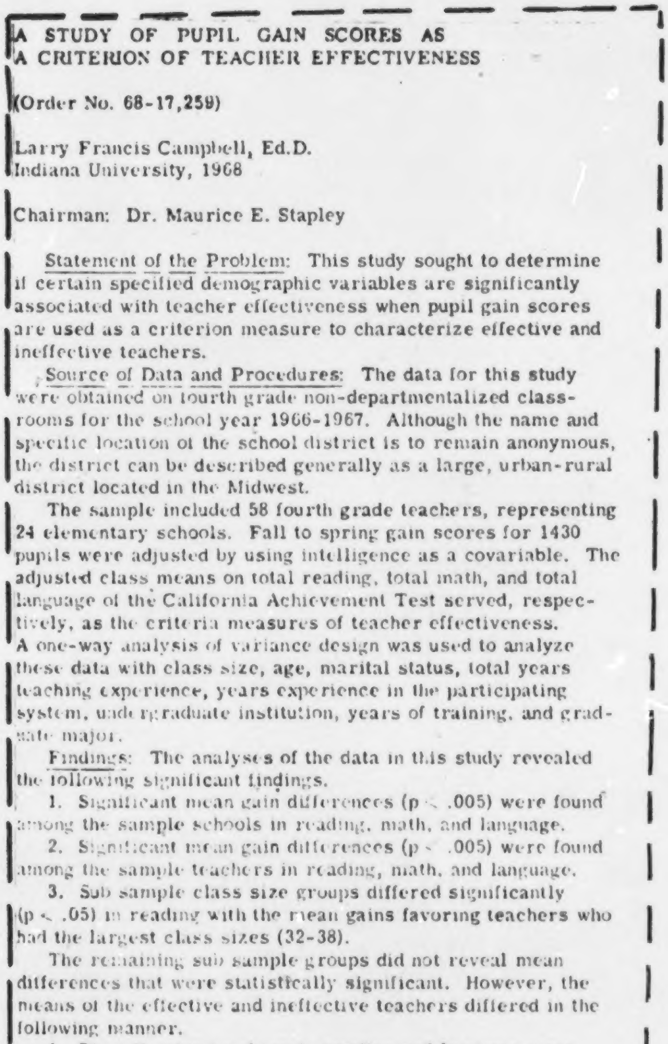
REFERENCES

1. E. J. Amidon and N. A. Flanders. *The Role of the Teacher in the Classroom.* Minneapolis: Paul S. Amidon and Associates, 1962.
2. E. J. Amidon and N. A. Flanders. "The Effects of Direct and Indirect Teacher Influence on Dependent-prone Students Learning Geometry," *Journal of Educational Psychology*, LII (December, 1961), 286-91.
3. N. A. Flanders. *Teacher Influence: Pupil Attitudes and Achievement, Final Report; 1960*; University of Minnesota; Project 397. Washington, D.C.: United States Department of Health, Education and Welfare; Cooperative Research Program; Office of Education, 1960.



Campbell, L.F. A study of pupil gain scores as a criterion of teacher effectiveness. *Dissertation Abstracts International*, 1968, *29*(6), 1803A.

Xerox of APA notecard.



A STUDY OF PUPIL GAIN SCORES AS A CRITERION OF TEACHER EFFECTIVENESS

(Order No. 68-17,259)

Larry Francis Campbell, Ed.D.
Indiana University, 1968

Chairman: Dr. Maurice E. Stapley

Statement of the Problem: This study sought to determine if certain specified demographic variables are significantly associated with teacher effectiveness when pupil gain scores are used as a criterion measure to characterize effective and ineffective teachers.

Source of Data and Procedures: The data for this study were obtained on fourth grade non-departmentalized classrooms for the school year 1966-1967. Although the name and specific location of the school district is to remain anonymous, the district can be described generally as a large, urban-rural district located in the Midwest.

The sample included 58 fourth grade teachers, representing 24 elementary schools. Fall to spring gain scores for 1430 pupils were adjusted by using intelligence as a covariable. The adjusted class means on total reading, total math, and total language of the California Achievement Test served, respectively, as the criteria measures of teacher effectiveness. A one-way analysis of variance design was used to analyze these data with class size, age, marital status, total years teaching experience, years experience in the participating system, undergraduate institution, years of training, and graduate major.

Findings: The analyses of the data in this study revealed the following significant findings.

1. Significant mean gain differences ($p < .005$) were found among the sample schools in reading, math, and language.

2. Significant mean gain differences ($p < .005$) were found among the sample teachers in reading, math, and language.

3. Sub sample class size groups differed significantly ($p < .05$) in reading with the mean gains favoring teachers who had the largest class sizes (32-38).

The remaining sub sample groups did not reveal mean differences that were statistically significant. However, the means of the effective and ineffective teachers differed in the following manner.

1. The effective teachers in reading and language were younger (22-30), were married, had fewer years of teaching experience (1-6), had the shortest tenure in the district (1-3), had fewest years of college training, and possessed no graduate major. Too, these teachers had the largest classes (32-38). Effective teachers in math would be characterized as older (53-61), single, having more experience (25-44), having longest tenure in the district (22-41), having more years of college training, with a master's degree in math or reading and having been a graduate of the local university.

2. The ineffective teachers in reading and language were characterized as being older (reading-over 34, language-over 53), single, having more total years of teaching experience (reading-over 7, language-over 25), serving longer in the district (reading-over 4, language-over 27), having 5 or 6 years college training and a master's degree in reading and/or math (language teachers) while the reading teachers held their degree in a field other than reading and/or math. Class sizes were smaller for both of these groups. Ineffective teachers in math would be described as younger, married, having fewest years of teaching experience (1-6), having fewest years in the system (1-3), and holding a bachelor's degree from the local university. Ineffective teachers in math had the smallest classes.

Conclusions: The results of this investigation seem to support the conclusion that caution should be used in employing pupil gain scores on a standardized achievement test as criteria of teacher effectiveness. The teacher variables that were studied in this investigation did not significantly associate themselves with either the effective or ineffective teacher.

M $3.00; X $4.60. 87 pages.

Boundary of cut-out original xerox copy pasted on blank sheet of paper.

Copies of the article are available from Xerox University Microfilms, Ann Arbor, Michigan, in microfilm and xerographic form. (order number 68-17, 259)

Campbell, L.F. A study of pupil gain scores
as a criterion of teacher effectiveness.
Dissertation Abstracts International, 1968
29(6), 1803A.

Xerox of note-card clipped to abstract.

rooms for the school year 1966-1967. Although the name and specific location of the school district is to remain anonymous, the district can be described generally as a large, urban-rural district located in the Midwest.

The sample included 58 fourth grade teachers, representing 24 elementary schools. Fall to spring gain scores for 1430 pupils were adjusted by using intelligence as a covariable. The adjusted class means on total reading, total math, and total language of the California Achievement Test served, respectively, as the criteria measures of teacher effectiveness. A one-way analysis of variance design was used to analyze these data with class size, age, marital status, total years teaching experience, years experience in the participating system, undergraduate institution, years of training, and graduate major.

Findings: The analyses of the data in this study revealed the following significant findings.

1. Significant mean gain differences ($p < .005$) were found among the sample schools in reading, math, and language.
2. Significant mean gain differences ($p < .005$) were found among the sample teachers in reading, math, and language.
3. Sub sample class size groups differed significantly ($p < .05$) in reading with the mean gains favoring teachers who had the largest class sizes (32-38).

The remaining sub sample groups did not reveal mean differences that were statistically significant. However, the means of the effective and ineffective teachers differed in the following manner.

1. The effective teachers in reading and language were younger (22-30), were married, had fewer years of teaching experience (1-6), had the shortest tenure in the district (1-3), had fewest years of college training, and possessed no graduate major. Too, these teachers had the largest classes (32-38). Effective teachers in math would be characterized as older (53-61), single, having more experience (25-44), having longest tenure in the district (22-41), having more years of college training, with a master's degree in math or reading and having been a graduate of the local university.
2. The ineffective teachers in reading and language were characterized as being older (reading-over 34, language-over 53), single, having more total years of teaching experience (reading-over 7, language-over 25), serving longer in the district (reading-over 4, language-over 22), having 5 or 6 years college training and a master's degree in reading and/or math (language teachers) while the reading teachers held their degree in a field other than reading and/or math. Class sizes were smaller for both of these groups. Ineffective teachers in math would be described as younger, married, having fewest years of teaching experience (1-6), having fewest years in the system (1-3), and holding a bachelor's degree from the local university. Ineffective teachers in math had the smallest classes.

Conclusions: The results of this investigation seem to support the conclusion that caution should be used in employing pupil gain scores on a standardized achievement test as criteria of teacher effectiveness. The teacher variables that were studied in this investigation did not significantly associate themselves with either the effective or ineffective teacher

M $3.00; X $4.00. 87 pages.

Copies of the article are available from Xerox University Microfilms, Ann Arbor, Michigan, in microfilm and xerographic form. (order number 68-17, 259)

PART 8: ORGANIZING THE LITERATURE INTO CATEGORIES

As a search is conducted, the references retrieved must be organized into categories in order to expedite the writing task. Rather than having volumes of literature with no shape or form, the literature is arranged according to logical categories or the initial outline. If the research effort is conducted by several persons at once, it is necessary that all persons categorize references in the same manner. This section will define a systematic way of organizing the literature into categories.

OBJECTIVE 8:

THE PARTICIPANT WILL BE ABLE TO ORGANIZE REFERENCES ACCORDING TO INFORMATION AREAS.

ACTIVITIES

Read the following summary which explains a systematic method of organizing the literature as it is retrieved.

Organizing the Literature

In preparing for a writing task, it is helpful to classify references into categories. Such categorization occurs at least twice. First, references are roughly classified according to established criteria or the outline. Later, when the writing task is beginning, references must be classified in more detail.

The initial classification should occur in the library when the reference is selected. This classification is based on the criteria of the outline areas which were established at the beginning of the search. A numerical notation on the first xeroxed page will suffice. This numerical notation should then be transferred to the notecard when notecards are written. Thus, the outline or criteria are the basis for organizing the literature into broad categories. References in the final product are then grouped according to categories and the reference list presents a summary of references which fall into these categories.

Later, when you begin your writing task, you will categorize reference materials in more detail. You will first number references on the reference list, and place the numerical symbol next to particular passages within references, along with indications concerning the section to which the passage refers. Eventually, you can xerox the article and cut and paste the passage into your outline format under a particular heading. By numbering the references and passages, you will not lose track of the source of the passage. Since organizing the writing task is beyond the scope of this module, you will not be required to do such detailed categorization. However, an example of such categorization is provided below. For the purpose of this module, broad, general categories should be noted on the first xeroxed page of the reference and later transferred to the reference card.

II. The Teacher Center Alternative

A. Definitions of Teacher Centers

1. Teacher centers in Great Britain

As Stephen Bailey described it in the *Kappan*, the model of the British teacher center seemed almost too good to be true:

> Teacher centers are just what the term implies: local physical facilities and self-improvement programs organized and run by the teachers themselves for purposes of upgrading educational performance. Their primary function is to make possible a review of existing curricula and other educational practices by groups of teachers and to encourage teacher attempts to bring about changes.

Pilcher, 1973, p. 340.

The set of relationships between British universities, curriculum theorists and developers, and classroom teachers

British teachers seem to look upon these outside agencies as resources or, in certain instances, as partners. The key word is *partner*; teacher and curriculum developer are equals, professional colleagues engaged in different aspects of the same enterprise. As far as particular children are concerned, the classroom teacher is regarded as the "expert." Decisions as to what is appropriate for a class of children rest with the teacher and the principal.

Pilcher, 1973, p. 341.

II. The Teacher Center Alternative

A. Definitions of Teacher Centers

1. Teacher centers in Great Britain
2. Teacher centers in the United States

> **Diverse functions of teaching centers make definition difficult. Most teaching centers concentrate on student teaching, attempting to provide a higher quality of student teaching experiences.**
>
> **Some teaching centers facilitate programs which correlate methods courses as closely as possible with student teaching, the primary objective being to fuse theory and practice.**
>
> **Perhaps the greatest impact of these centers is being felt in that educational no man's land, the gap between theory and practice. Methods courses taught on the site concurrently with classroom observations and student teaching help bridge this gap.**

Willems & Brown, 1972, p. 131.

> What are the consequent implications for American teacher centers? These questions have gone largely unexamined in the current rush to jump on the teacher center bandwagon.
>
> In place of such an examination, one finds a disquietingly naive acceptance of the idea by many American educators. On the campuses of such leading innovators as the Harvard and University of Massachusetts Schools of Education, there is a sudden rush to form groups to plan and implement teacher centers. Fifteen-thousand-dollar planning grants for 20 teacher center sites have suddenly materialized from the U.S. Office of Education. Three state departments of education have received federal funding for $250,000 each to set up teacher centers. Houston, Texas, projects are receiving USOE funds in the million-dollar category for teacher training programs, including teacher centers. Amazingly, within 6 to 8 months of the appearance of Bailey's article, some 75-100 teacher centers were reportedly *in operation* in the United States.

Pilcher, 1973, p. 341.

POSTTEST

The following references focus on the topic of teacher characteristics as they relate to student attitudes and achievement. Read the references and place them in one of the following categories:

1. Teacher characteristics as they relate to student attitudes
2. Teacher characteristics as they relate to student achievement

Baker, K.D. & Snow, R.E. Teacher difference as reflected in student aptitude-achievement relationships. OEC-6-10-078.Stanford, Calif.: Stanford Center for Research and Development in Teaching, 1972. (ERIC ED 062 311.)

ED 062 311 **SP 005 708**
Baker, Katherine D. Snow, Richard E.
Teacher Differences as Reflected in Student Aptitude-Achievement Relationships.
Stanford Univ., Calif. Stanford Center for Research and Development in Teaching.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Report No—R&D-Memo-85
Bureau No—BR-5-0252
Pub Date Feb 72
Contract—OEC-6-10-078
Note—27p.
EDRS Price MF-$0.65 HC-$3.29
Descriptors—*Academic Achievement, *Academic Aptitude, *Effective Teaching, Student Reaction, Student Teacher Relationship, *Teacher Behavior, *Teacher Characteristics
Identifiers—*Stanford Teacher Education Program, STEP

The purpose of this study was to explore the possibility that the relationships between students' aptitudes and achievements differ from teacher to teacher. If this were so, it would suggest that teacher effectiveness can not be described adequately by measures of average class achievement. The report demonstrates the use of univariate and bivariate regression analyses to study differences among teachers. The subjects were teacher trainees and paid volunteer high school students who participated in Stanford's Teacher Education Program (STEP) in the summer of 1967. Data were obtained from the Intern Data Bank, a collection of information about teaching interns at Stanford. The regression analysis approach to this question is demonstrated and discussed; student aptitude-achievement relationships did not vary substantially among the teachers studied, although some individual teachers displayed distinctive patterns. A 10-item bibliography and figures are included. (Author)

Goldsmith, C.H. An investigation of the relationship between selected teacher characteristics and the effectiveness of teachers of culturally diadvantaged elementary school students. *Dissertation Abstracts International*, 1971, *32*(2), 819A.

AN INVESTIGATION OF THE RELATIONSHIP BETWEEN SELECTED TEACHER CHARACTERISTICS AND THE EFFECTIVENESS OF TEACHERS OF CULTURALLY DISADVANTAGED AND NON-DISADVANTAGED ELEMENTARY SCHOOL STUDENTS

Clarence Hayden GOLDSMITH, Ph.D.
St. Louis University, 1970

The basic problem of this study was to determine to what extent certain selected teacher characteristics, as measured by the *Behavioral Dimensions of Teaching-Characteristics Schedule,* were associated with teacher effectiveness in culturally disadvantaged and non-disadvantaged elementary schools when an annual learning rate, computed from pupil gain scores, was used as a criterion of the effective teacher. The personal characteristics of effective teachers have long been recognized by those responsible for the education of youth to be of central importance to the classroom processes. This importance is magnified to generous proportions when applied to urban school districts containing large numbers of culturally disadvantaged students. As a director of learning and according to his abilities, the teacher influences pupil progress toward self-direction; therefore, his personal characteristics and effectiveness are critical.

The sample utilized in this investigation consisted of thirty randomly selected fifth and sixth grade teachers and their students from schools defined by the Elementary and Secondary Education Act of 1965 as culturally disadvantaged, and thirty randomly selected teachers and their students from non-disadvantaged elementary schools. The *BDT-CS* was administered to the sample teachers to measure five selected teacher characteristics: (1) warm-spontaneous; (2) organization; (3) viewpoint; (4) stability, and (5) involvement.

Pretest and posttest standardized test scores from the *California Achievement Tests* were used to measure pupil gain for the time under study, and then to compute an annual learning rate, in terms of percentages, for each teacher's class. The annual learning rate percentage was used to rank each teacher's class, from high to low, either culturally disadvantaged or non-disadvantaged, as a criterion measure of the teacher's effectiveness. The teacher's *BDT-CS* scores were matched to the rank of his class and the ten highest and ten lowest ranked teacher characteristics were statistically analyzed. The middle ten scores were eliminated and were not used further in the study.

The Student's t test for independent samples was used to determine if there were significant differences in teacher characteristics when comparisons were made among teachers of culturally disadvantaged and non-disadvantaged elementary students with either high or low annual learning rates. The results of the tests of significance reject the research hypothesis with the conclusion that teacher characteristics, as measured by the *BDT-CS,* were not significantly different among the teachers under study and, therefore, were not associated with teacher effectiveness in culturally disadvantaged or non-disadvantaged elementary schools when an annual learning rate, computed from pupil gain scores, was used as a criterion of the effective teacher.

Thus, the results of this investigation were to fail to reject the null hypothesis. Any differences in teacher characteristics which might occur were due to chance and not the result of teaching in either culturally disadvantaged or non-disadvantaged schools, or due to the effectiveness of teachers when an annual learning rate was used as the criterion measure of an effective teacher.

Order No. 71-21,389, 138 pages

Copies of the article are available from Xerox University Microfilms, Ann Arbor, Michigan, in microfilm and xerographic form (order number 68-17, 259).

Kohn, P.M. Relationships between expectations of teachers and performance of students. The Journal of School Health, 1973, 43(8), 498-503.

RELATIONSHIPS BETWEEN EXPECTATIONS OF TEACHERS AND PERFORMANCE OF STUDENTS

(Pygmalion in the Classroom)

PAUL M. KOHN, PH.D*
Department of Psychology, York University

There is a story, probably apocryphal, about a late-blooming graduate student who was widely regarded as one of the top students in his department, although his promise had evidently not always been great. In fact, his principal in elementary school, noting his unimpressive record, urged him not to enter the academic stream in high school as it would be "a bloody wonder" if he made it past his sophomore year.

However, he was a defiant fellow and persevered, eventually with great success. When he earned his doctorate, he recalled the principal's prognosis and decided to write him a letter. It went somewhat as follows (any resemblance to the names of real persons is unintentional):

> Dear Mr. Wilson:
>
> My name is Fenwick F. Fenwick. I was one of your pupils, and, before I graduated in 1956, you told me it would be "a bloody wonder" if I made it past sophomore year in the academic stream at high school.
>
> This is to inform you that on June 15 shortly after 2:30 P.M. I shall be receiving my Ph.D. in astrophysics from Ivy University.
>
> Yours sincerely,
> Fenwick F. Fenwick

Shortly before the commencement ceremonies, Fenwick received the following telegram:

> It *is* a bloody wonder.
>
> Yours sincerely,
> Wilson W. Wilson

This kind of communication between teacher and pupil is what diplomats would call a "frank expression of views." Usually teachers are not quite that frank, perhaps because it is considered bad pedagogy and also invites trouble from parents. Teachers, however, do have preconceptions about the abilities of many of their pupils, and probably communicate them — subtly, covertly, and inexplicitly, but communicate them nonetheless. The purpose of this paper is to review research on the possible effects such preconceptions and their communication have on the actual intellectual development and school performance of pupils.

The best known study in this area is that of Rosenthal and Jacobson.[1] They administered to all the children in a San Francisco area school a little known nonlanguage intelligence test. This measure has a verbal subtest to assess information, vocabulary, and linguistic concepts (*eg*, food *vs* nonfood), and a reasoning subtest to assess the ability to understand relationships and abstract concepts (*eg*, angular *vs* rounded figures). The test was misrepresented to the classroom teachers as "The Harvard Test of Inflected Acquisition," an intelligence measure designed, not just to assess immediate IQ, but also to predict spurts, gains, and upward inflections in the fairly near future. The investigators arbitrarily designated a randomly selected 20 per cent of the pupils in each classroom as being intellectually "about to bloom." Subsequent testings took place four, eight, and 20 months later.

The question being investigated was this: Would the manipulation of teachers' expectations become a self-fulfilling prophecy? Would those children to whom a sudden growth of intellect was ascribed by the grace of the table of random numbers, in fact, show such growth? The question is important because it may bear on the interests not just of individual pupils, as in the anecdote, but also of entire social groups such as ethnic minorities and the poor. Insofar as there are stereotypical preconceptions of the abilities of such groups, might not such conceptions also become self-fulfilling prophecies?

The answer suggested by Rosenthal and Jacobson's data is complicated. It all depends on what combinations of grade, testing time (four, eight, or 20 months after the manipulation), sex, ability grouping, and intelligence subtest you look at. The test scores of children designated as bloomers were compared to those of their classroom peers. At four months, bloomers in Grades 3-6 showed a significant advantage over their peers, while bloomers in Grades 1 and 2 did not; at eight months, only the younger bloomers outshone their peers — very substantially; and, at 20 months, again only the older bloomers seemed to benefit. Blooming girls outshone their control-group peers in reasoning IQ (but not verbal IQ) at all three points in time. Blooming boys only showed an expectancy advantage in verbal IQ at 20 months. Medium track bloomers benefited significantly in reasoning IQ at all three post-tests while their slower and faster colleagues did not. Mexican children showed an expectancy advantage in verbal IQ at 20 months only, and in reasoning IQ at eight months only. However, Mexican boys (but not girls) benefited more from the manipulation in full-scale IQ and both subscales at eight and 20 months, the more Mexican they looked.

---

*Paul M. Kohn is Associate Professor of Psychology at York University, Toronto, Ontario. He delivered an earlier version of this paper on August 17, 1972, in Niagara Falls, New York, at the Conference on School Health, jointly sponsored by the School of Continuing Medical Education, State University of New York at Buffalo, and the Buffalo Board of Education.

In terms of academic performance, the one area where the bloomers, in fact, bloomed more conspicuously than their peers was reading. Again, younger and middle-track bloomers benefited most.

About a decade earlier, Pitt[2] had conducted similar experiments with Grades 5 and 6 boys in Toronto, Canada. One experiment compared pupils whose IQ's were known by teachers with pupils whose IQ's were unknown by teachers as to their achievement-test performance; classroom marks; perceptions of self, school, and teacher; and teacher's perceptions of them. The second experiment made the same comparisons on three group of boys: ones whose IQ's were correctly represented to teachers; ones whose IQ's were underrepresented by ten points; and ones whose IQ's were overrepresented by ten points. There were very few significant effects in either experiment despite the extensive analyses conducted. One finding was that boys about whose IQ's teachers had accurate knowledge tended to get higher spelling marks than boys about whose performance teachers were misinformed (either way). In the case of the underrepresented boys, the inferior spelling performance was peculiar to the (objectively) less bright ones (IQ< 115) with low spelling marks prior to the experimental manipulation.

The underrepresented boys reported seeing themselves as less hard-working than others did, but paradoxically also saw schoolwork as being more difficult for them than did the others. They also seemed to see the teacher as more unfair to them than their peers reported for themselves. Both misrepresented groups tended to think that the teacher considered them lazy in comparison to the perceptions of the accurately represented group.

The relationship of test information to teachers' reported preconceptions seemed more important than the preconceptions themselves. Over the course of the year, the school performance of pupils whose intelligence teachers reported underestimating in relation to test information improved, while that of overestimated pupils declined. There were no corresponding effects on achievement test scores. This improved school performance may have been related to the teachers' self-reported tendencies to increase their demands on previously underestimated pupils, and decrease their demands on previously overestimated ones. It should again be noted that the few positive results reported here represent a sparse yield from a very large number of analyses.

The results of the two pioneering studies on teacher expectancies are fairly complex. The following subsequently conducted studies do not necessarily simplify matters.

Evans and Rosenthal[3] conducted a study like Rosenthal and Jacobson's at two urban Midwestern schools. At the end of one year, they found a significant expectancy gain in reasoning IQ for boys, and a significant expectancy loss in verbal IQ for girls. These results are substantially different from those of Rosenthal and Jacobson.

Another replicational study, this by Conn, Edwards, Rosenthal, and Crowne,[4] yielded very complex results. After one semester, males (only) in the blooming group showed almost significantly greater gains in verbal IQ than their control group peers ($p<0.10$). With the further passage of one year all apparent benefits of the expectancy manipulation disappeared except in certain special subgroups. Conn et al also had measures of their *S*'s accuracy in detecting the emotional quality of adult male and female voices. (Sensitivity to the vocal expression of emotion by males *vs* females turned out to be fairly independent of one another ($r=0.23$, $p<0.01$).

For males, sensitivity to the female voice was associated with expectancy gains in reasoning IQ after one semester. This suggests that it serves a fellow well to be responsive to the subtle nuances of the adult female voice! However, the short-term expectancy advantage of this group appeared to have dissipated a year later. For female pupils too, a short-term expectancy advantage (but no long-term advantage) was associated with sensitivity to the adult female voice; however, for girls, the fleeting advantage was on the verbal rather than the reasoning subscale.

It is interesting that after one semester, males who were more accurate in detecting the emotional qualities of the adult male voice tended to benefit *less* from the expectancy manipulation in reasoning IQ than their less male-sensitive male peers ($p<0.10$). After another year, the male-sensitive males showed *more* expectancy advantage in both verbal and reasoning IQ (p's <0.05 and <0.01, respectively). Conn et al claimed that available research indicates that male sensitivity to male vocal emotion is associated with self-confidence and emotional maturity. Consequently, they argued, male-sensitive males, being less dependent, should be less influenced by teachers' preconceptions in the short term; however, in the long run, their self-confidence and general maturity result in greater benefit from positive teacher expectations. (Presumably, the same characteristics should confer both short- and long-term immunity to negative expectations.)

Claiborn [5] also conducted an experiment to replicate and extend that of Rosenthal and Jacobson. Although he found a massive overall increase in IQ, about 11 points, across treatment conditions, he obtained no significant differential change between bloomers and controls. Interestingly, unlike both Rosenthal and Jacobson, and Evans and Rosenthal, Claiborn did find that teachers showed quite good recall for the names of bloomers in their classes. Possibly, the much shorter recall interval in his experiment (two months) is responsible for the discrepancy.

As to the more serious discrepancy of finding *vs* not finding some expectancy effect, Claiborn expressed skepticism about the reality of the so-called Pygmalion effect. Although he noted differences between his and the Rosenthal-Jacobson designs, notably the late introduction of the expectancy manipulation and the short test-retest interval in his own study, he argued that these were probably irrelevant by pointing out that they did not prevent expectancy effects from emerging in two other experiments.

A study with more positive results was reported by Palardy.[6] He compared the male and female pupils of five Grade 1 teachers who believed that girls learned reading more easily than boys with those of five teachers who did not share that belief as to their actual subsequent reading performance. The teachers' preconceptions did seem to constitute a self-fulfilling prophecy: girls were superior in the classrooms of teachers who expected it, but not in those of teachers who did not. The discrepancy in apparent reading superiority of the girls was primarily attributable to differences in the performance of the two groups of boys, differences which approached significance ($p<0.08$). The boys did better when they were not expected to do worse than the girls than when they were.

Beez [7] also reported an experiment with positive results. He had each of 60 graduate students in education administer a symbol-learning task and crossword puzzles to a child in Project Headstart. Each experimenter-teacher had received a psychological evaluation which gave either a positive or a negative prognosis on the child's probable future adjustment in school. The two prognoses were, of course, randomly assigned. The results on the symbol-learning task were quite dramatic! The positive-prognosis group learned about twice as many symbols as the negative-prognosis group. However, there were no reliable differences in crossword puzzle performance.

There were strong effects on the attitudes and behaviours of the teachers. Substantially more teachers of negative-prognosis pupils (63 per cent) saw the symbol learning task as too difficult for their charges than did teachers of positive-prognosis pupils (3.3 per cent). The former teachers also rated their pupils lower on achievement, social competition, and intellectual ability. Correspondingly, these teachers of negative-prognosis pupils spent more time per problem, taught more repetitively, and spent more time on non-task-oriented interaction with their pupils.

Anderson and Rosenthal [8] conducted an expectancy-manipulation experiment with 28 boys in a New England school for the retarded as their pupil-subjects. Quite apart from the positive expectancy manipulation, some of the boys were having intensive one-to-one contact and reading instruction with volunteer tutors from area high schools. Boys who were both designated as about to bloom and being tutored showed a significant *decline* in reasoning IQ both absolutely and in relation to the other three treatment-groups. On the other hand, the intended bloomers were rated as showing significantly more improvement in practical self-management than their peers.

Rosenthal [9] later reported follow-up data on the Anderson-Rosenthal study, data collected nine months after the original manipulation (and seven months after the first post-test). The specific expectancy disadvantage of the "tutored bloomers" disappeared by this time. However, the boys who received either one of these two treatments did better on reasoning IQ and total IQ than boys who received both or neither. Furthermore, the data suggested that the bloomers had been receiving less attention from their counselors, and they had developed a greater degree of independence than their peers.

Meichenbaum, Bowers, and Ross [10] did an expectancy-manipulation experiment in an Ontario training school for adolescent female offenders. Their study was distinctive in a number of ways:

1. They took greater care than heretofore to ensure the success of their manipulation through intensive discussion with the teachers as a group. The result apparently was an acceptance of even the less plausible nominations of bloomers which the teachers rationalized through hindsight wisdom.
2. They had only four teachers who had intensive contact with each of the six experimental and eight control subjects.
3. They made systematic observations via one-way mirrors of both teachers' and pupils' classroom behaviours.

The bloomers showed more improvement than controls in objectively graded (but not subjectively graded) academic performance and rated appropriateness of classroom conduct. The three teachers in whose classrooms the bloomers did excel their peers either increased their positive interaction or decreased their negative interaction with the bloomers.

What is notable about the empirical literature reviewed here is its inconsistency. Sometimes, expectancy manipulations work; sometimes not; and other times they seem to backfire. The data on expectancy benefits for various subgroups (*eg*, boys vs girls) are no less contradictory. In general, these studies do not lend themselves to facile summarization.

In a way, this should not be surprising as research in this very complex area has proceeded in the virtual absence of any conceptual framework. It is the absence of theory which is surprising because teachers' communication of their preconceptions about pupils to the pupils would seem to be a special case of communication and persuasion. Moreover, the latter area is rich in theoretical resources. Accordingly, let us consider some possible applications.

The first question has to be whether or not a teacher even has preconceptions about the abilities of given pupils. In correlational research and everyday life, this is a problem of assessment; however, in experiments which the bulk of studies in this area have been, the problem is whether or not the expectancy manipulation *registers*. If it does register, there then arises the question of how long it is retained. Studies have varied in the care given to establishing the manipulation, with that of Meichenbaum et al being exemplary. With respect to retention, it seems that teachers are incapable of accurately recalling the names of bloomers after such long intervals as an academic year (Evans and Rosenthal) or 20 months (Rosenthal and Jacobson) but not intervals as brief as two months (Claiborn).

Insofar as who the bloomers are fails to register consistently or misregisters in the case of some nonbloomers, one should expect rather confused effects, if any. Retention, however, is another matter. If teachers treat bloomers and nonbloomers differently early on, but later forget who's who, the early treatment differences could have an effect which is sustained subsequently for other reasons (*eg*, improved self-confidence in the bloomers, enhanced intrinsic enjoyment in using one's intellectual skills).

Insofar as an expectancy manipulation is successful, its primary behavioural effects must be on the teacher. Studies of small groups,[11] parent-child relationships,[12,13] and even the modes of second-person address [14] all suggest two important dimensions of interpersonal behaviour: an affectional or solidary dimension, and an authoritative or power-status dimension. How do teachers' expectations about a pupil's abilities affect his behaviour on these dimensions? One likely effect is that teachers' expressed *demands* and standards vary according to the perceived ability of the pupil; indeed, some of the findings by Pitt, by Rosenthal and Jacobson, by Anderson and Rosenthal, and by Beez support such a presupposition. (See also Brophy and Good,[15] and Rubovits and Maehr.[16]) It may be that the quality of a student's work will improve as the demands of his teacher increase, provided the demands are within the student's capabilities.

In addition, teachers' attitude, evaluation, or attraction to pupils and their expression of this could vary with their preconceptions about pupils' abilities. Teachers may generally find seemingly brighter children more attractive and could act accordingly, either implicitly, or explicitly, or both. The results of Meichenbaum et al are an example. (See also Rubovits and Maehr. These authors reported that students arbitrarily designated as gifted were praised more for their contrbutions to a discussion than students of equivalent ability identified as nongifted. In a later study,[17] they found that such differential praise as well as differential soliciting of "gifted" and "nongifted" students' opinions occurred with white, but not black, students. The teachers were white undergraduate females in teacher-training courses who generally solicited blacks' opinions less, praised them less, and ignored and criticized them more).

However, teachers' preconceptions should affect their expressed attitudes less consistently than their expressed demands, for it is normatively acceptable for teachers to demand more from abler pupils, but not to prefer them. Also, there are other bases for interpersonal attraction than ability (even for teachers!). Thus, teachers should vary in how much they discriminate affectionally. Insofar as teachers' affectional behaviour contributes to expectancy effects, these should be less apparent with more impersonal teachers. Paradoxically, such teachers might be less effective generally. Rosenthal and Jacobson found a significant and substantial positive correlation between bloomers' and nonbloomers' gains for the same classrooms.

Next, insofar as an expectancy manipulation has been successful and has become translated into the expression of corresponding demands and/or affect, the question of pupil response arises. There is a distinction in the persuasion-and-communication literature between comprehending the position of a persuasive communicator, and yielding to it. This distinction should apply to the teacher-pupil case. Furthermore, children should differ in their predispositions for both comprehension and yielding.

First, some pupils may be more accurately sensitive than others to a teacher's like or dislike of them and the level of work demanded of them. Sensitivity to the emotional timbre of the adult voice of the teacher's sex, as investigated by Conn et al, seems relevant here. It may well be more relevant to the expression of affect which is usually implicit than to the expression of demands which is usually more explicit. In this case, simple intelligence (and possibly defensiveness) may be more important.

Secondly, if a pupil accurately comprehends a teacher's attitude and aspiration level for him, he can yield or resist the behavioural implications to varying degrees. Such differences should generally be more evident for negative than positive preconceptions. Most pupils would be expected to react positively to the latter. With respect to negative preconceptions, the degree of pupil yielding and hence self-fulfillment of teacher prophecy would probably vary with the pupils' self-esteem and self-conception of his abilities. Students with positive self-evaluations generally and/or specific to their abilities should be less influenced by negative teacher preconceptions than their less positively self-evaluating peers.

The present type of analysis has the advantage of generality. It should apply to any dyadic relationship where one party has preconceptions about the other, and, indeed, it is largely derivative from a general approach to the broader area of persuasion and communication. There is no intrinsic reason why the same principles should not apply and similar phenomena occur in the case of pupils' preconceptions about teachers.

Kelley[18] long ago established that students' preconceptions about a teacher at the university level, specifically with respect to his interpersonal warmth *vs* coldness, affect students' perceptions of and behaviour toward the teacher. Teachers who met a discussion class only once were perceived as more sociable, more popular, better natured, more humorous, and more humane by those students to whom they were described in advance as warm rather than cold persons. Furthermore, the students whose prior information about the teacher described him as warm participated more in the classroom discussion.

Furthermore, a study by Jenkins and Deno[19] suggests that teachers are not necessarily unaffected by such reactions. They had undergraduate confederates respond in a predeterminedly positive and interested, or negative and bored manner to lectures by senior education students. The novice lecturers' self evaluations were predictably affected.

Very recently, Herrell[20] took Kelley's work another step further. He demonstrated that teachers represented prior to a guest lecture as warm actually taught with a warmer, more relaxed, and generally better teaching style than the same teachers represented as cold.

Furthermore, this judgment is based not on the reactions of the immediate audience, but rather on the ratings by neutral and treatment-blind judges of tape-recorded lecture-segments. Judges' ratings did not distinguish the early segments of warm and cold presentations, presumably recorded before the audience's preconceptions could have had any impact on the speaker; however, the judges rated the later segments of warm lectures as superior to those of cold lectures. Teachers may be no less susceptible to self fulfilling prophecies than their pupils.

To conclude, it is hoped that this paper achieves its intended objectives. First, it should make the reader appreciate the complexity and contradictory nature of the empirical findings on teacher expectancy effects. Second, it offers a conceptual framework intended to reduce some of the complexity and resolve some of the apparent contradictions. Third, it is hoped that the conceptual framework illuminates some of the steps intervening between an expectancy manipulation and whatever effects it has, if any. It may well be the many possible slips 'twixt cup and lip which account for contradictory findings. If such variables are accurately identified, they can be controlled, measured, or manipulated rather than continuing their massive contributions to error variance. Finally, we should all realize that self-fulfilling prophecies probably occur irrespective of such status distinctions as that between teacher and pupil.

REFERENCES

1. Rosenthal R, Jacobson L: Pygmalion in the Classroom. New York, Holt, Rinehart and Winston, 1968.
2. Pitt CCV: An experimental study of the effects of teachers' knowledge or incorrect knowledge of IQ on teachers' attitudes and practices; and pupils' attitudes and achievement. Unpublished doctoral dissertation, Columbia University, 1956.
3. Evans JT, and Rosenthal R: Interpersonal self-fulfilling prophecies: further extrapolations from laboratory to classroom. Proc Ann Conv Am Psych Assoc 77:371, 1969.
4. Conn LK, Edwards CN, Rosenthal R et al: Perception of emotion and response to teachers' expectancy by elementary school children. Psychol Reps 22:27, 1968.
5. Claiborn WL: Expectancy effects in the classroom: a failure to replicate. J Educ Psychol 60:377, 1969.
6. Palardy JM: What teachers believe—what children achieve. Elem Sch J 69:370, 1969.
7. Beez WV: Influence of biased psychological reports on teacher behaviour and pupil performance. Pro Ann Conv Am Psych Assoc 76:605, 1968.
8. Anderson DF, Rosenthal R: Some effects of interpersonal expectancy and social interaction on institutionalized retarded children. Proc Ann Conv Am Psych Assoc 76:479, 1968.
9. Rosenthal R: Teacher expectation and student learning. *In* Strom RD (ed): Teachers and the Learning Process. Englewood Cliffs, N.J., Prentice-Hall, 1971.
10. Meichenbaum DH, Bowers KS, Ross RR: A behavioural analysis of teacher expectancy effect. J Person Soc Psychol 13:306, 1969.
11. Bales RF, Slater PE: Role differentiation in small groups. *In* Parsons T, Bales RF, Shils EA: Working Papers in the Theory of Action. Glencoe, Illinois, Free Press, 1953.
12. Schaefer ES, Bell RQ: Patterns of attitudes to child-rearing and the family. J Abnorm Soc Psychol 54:391, 1957.
13. Siegelman M: Evaluation of Bronfenbrenner's questionnaire for children concerning parental behaviour. Child Devel 36:164, 1965.
14. Brown RW: Social Psychology. New York, Free Press, 1965.
15. Brophy JE, Good TL: Teachers' communication of differential expectations for children's classroom performance: some behavioural data. J Educ Psychol 61:356, 1970.
16. Rubovits PC, Maehr ML: Pygmalion analyzed: toward an explanation of the Rosenthal-Jacobson findings. J Person Soc Psychol 19:197, 1971.
17. Rubovits PC, Maehr ML: Pygmalion black and white. J Person Soc Psychol 25:210, 1973.
18. Kelley H: The warm-cold variable in first impressions of persons. J Pers 18:431, 1950.
19. Jenkins JR, Deno SL: Influence of student behaviour on teachers' self-evaluation. J Educ Psychol 60:439, 1969.
20. Herrell JM: Galatea in the classroom: student expectations affect teachers' behaviour. Proc Ann Conv Am Psych Assoc 79:521, 1971.

Reprinted with permission of the American School Health Association.

Snyder, F., & Sibrel, F. The Thornton Elementary School Project - An investigation of pupil attitude toward school and perceived influence of parental and teacher roles. Contemporary Education, 1971, 42(4), 164-168.

The Thornton Elementary School Project—An Investigation of Pupil Attitude Toward School and Perceived Influence of Parental and Teacher Roles

By Fred Snyder and Frank Sibrel

HAVE YOU ever wondered why children apparently develop a negative attitude toward their educational endeavors as they progress through school? Parents are usually the major socializing agents influencing and molding children's attitudes and behaviors. The role of teachers in this regard must not be negated, however, inasmuch as there is often more time spent in personal contact between children and teachers than there is between children and their parents. It would seem reasonable to assume that congruity of parent and teacher perception toward factors inherent in formal educational environments is a condition that is most desirable, particularly in regard to those aspects in which the dynamic perception of children shifts from a positive outlook to a more negative viewpoint.

Tangential to children's dynamic perception is the desire to perform competently in achievement situations. Such need is evident, not only in observed intellectual situations, but also in the baby learning to crawl, the pre-school child learning to ride a tricycle, and the school child learning to make friends. It is quite apparent that the attainment of achievement goals and the approval of others are sources of personal satisfaction and security.[1]

Thornton Elementary School of the Vigo County School Corporation in the State of Indiana is a typical elementary school in which there has been a growing recognition of the importance of parent and teacher influence upon children's attitudes toward their formal learning experiences. In the spring of 1970, a number of parents and teachers of the Thornton Elementary School Parent-Teacher Organization gathered to discuss children's attitudes toward their formal learning experiences. One outcome of this meeting was an indication that parents and teachers may perceive the values of certain learning activities differently and that they may perceive the relationship of their own role and the role of the other differently in respect to the extent that these roles may exercise a significant influence upon children's attitudes toward school experiences.

Following this meeting of parents and teachers, the principal of Thornton Elementary School contacted Indiana State University and posed the problem toward which this writing is directed. Research team members from Child Psychology classes at Indiana State University were solicited. Eight members of these classes and an assistant agreed to participate as members of the research team.[2] Members of the research team met and discussed the proposed problem with the principal of Thornton Elementary for purposes of delimiting and further defining the problem as expressed by the principal. The specific problem toward which the present research was directed is presented in the following discussion.

FRED SNYDER, *Acting Head, Dept. of Education and Associate Professor of Education, Indiana State University.*

FRANK SIBREL, *Principal of Thornton Elementary School, Terre Haute, Indiana.*

[1] Harold W. Stevenson, Jerome Kagan and Charles Spiker, **Child Psychology, Part I of The Sixty-Second Yearbook of the National Society for the Study of Education** (Chicago: University of Chicago Press, 1963), p. 116.

[2] The following participated as members of the research team: Don Barnes, John Batt, Dietra Puckley, Leonard Carr, Arletta Case, David Gray, Sharon Pasalich, John Simms, Jerre Cline, Graduate Assistant, Fred Snyder, Instructor

The Purpose of the Research

The purpose of this study was to investigate the following questions:

1. What are the activities associated with formal educational experiences which are perceived to exist commonly by children in grades one through six?
2. Among the activities identified as being commonly perceived by children in grades one through six, which are the activities perceived as significantly more negative by intermediate grade children than primary grade children?
3. Considering the differences in the perception of intermediate grade children and primary grade children as being pertinent perceptual factors, is there a difference between teachers' and parents' perceptions relative to the value of these factors in respect to expected learning outcomes?
4. What significant differences exist between parent and teacher perceptions of parent role expectations relative to pertinent perceptual factors?
5. What significant differences exist between parent and teacher perceptions of teacher role expectations relative to pertinent perceptual factors?

Importance of the Investigation

Even though the present research is limited in scope and has a number of other inherent limitations, the study is important for at least three reasons. In the first place, this study has demonstrated a technique that could be used in other educational settings for providing insights concerning bases for children's attitudes toward learning.

Secondly, in view of the extent that the general public is concerned about children's "unrest" and attitudes toward learning expectations, it seems reasonable that information, even though related to a specific geographical area and particular school, could be beneficial in other areas of the United States.

Finally, the information derived from this study was of particular interest to the educators and lay public associated with the Thornton Elementary School. Through better understanding of pertinent perceptions of those associated with the school, the learning outcomes for children enrolled in Thornton may well be enhanced. It is quite feasible that through knowledge of these factors steps might be taken to help the learner develop a more positive attitude toward his learning experiences, which in turn would provide an outcome of greater learning.

Theoretical Background

Given the assumption that parent and teacher perceptions toward activities inherent in the formal education of children are causal factors of negative attitude on the part of children, the problem became one of determining what factors are in fact pertinent for children in the on-going program of formal education. These factors would be those aspects of the educational program which children of all ages (grades one through six) perceive to exist and toward which the older children maintain a differing attitude from that maintained by the younger children. Thus, the research team was confronted with the proposition of considering children's attitudes toward school as an implicit phenomenon.

The problem centers upon values and value judgment as perceived by teachers and parents in conjunction with their roles as they deal with children.

It can be postulated that discrepancy in perceptual values in activities related to the formal education of children is in fact basis for differences which may exist in expressed attitudes toward school.

This postulate as an underlying principle in the present study necessitated the selection of an appropriate theory of perception. Perception has been considered from many and various frames of references. Ittleson and Cantril offered three major characteristics of perception which were adopted as appropriate theories for the present study.

> . . . the facts of perception always present themselves through concrete individuals dealing with concrete situations. They can be studied only in terms of the transactions in which they can be observed. Second, within such transactions, perceiving is always done by a particular person from his own unique position in space and time and with his own combination of experiences and needs. Perception always enters into the transaction from the unique personal behavioral center of the perceiving individual. Third, within the particular transaction and operating from his own personal behavior center, each of us through perceiving creates for himself his own psychological environment by attributing certain aspects of his experience to an environment which he believes exists independent of the experience. This characteristic of perception we can label externalization.[3]

Thus, for the purposes of the present study, perceiving was regarded as a process in which each individual, from his own point of view, interprets the world within which he has experiences and strives to gain satisfactions.

The Research Design

The research design of the study was based upon the previously discussed theories. In order to ascertain common typical perceptions of children relative to "what goes on in school" the research team conducted a pilot study of children's perception. In the pilot study, thirty-six children were interviewed -- six from each grade level from one through six. Children participating in the pilot study were selected by classroom teachers with the instructions that the research team wished to talk with children who were adept at oral expression. Children interviewed were asked one question, "What goes on in school?" The research team members conducting the interviews, did, however, encourage the children interviewed to discuss "what goes on" in detail. If a child stated that they studied some particular discipline -- spelling, for instance, the interviewing research team member would ask, "How do you study spelling — what do you do?" These minute behavioral responses of the children were then recorded by the research team member.

The data collected in the pilot study were analyzed in terms of identified common perceptions of participating children. The purpose in this analysis was to establish dimensions of the educational program which were perceived by children at all grade levels (grades one through six) as being a part of their experiences in school. It was postulated that this synthesis of common perceptions among children of all grade levels under investigation would provide face validity for instrumentation to be utilized in a second phase of the study. The pilot study resulted in the identification of forty factors which were common in the perception of children at all grade levels. These forty factors then became the basis for an instrument developed by the research team which was used in a second pilot study -- the second phase of the research.

The method employed in the second pilot study was one of personal contact. Each classroom, grades one through six, of the participating school was visited by one of the research team members to administer the resultant instrument of the first pilot study orally. In the conduct of this investigation, the research team member would read each of the forty factors included on the instrument and the participants in the study indicated the extent to which they liked the educational-program-related factor to happen on a form provided by the research team.

The data under consideration is the second pilot study were ordinal in nature: therefore, a nonparametric statistic was selected for this analysis. The statistic used was the Mann-Whitney Z.[4]

The employment of this test on data collected in the second pilot study resulted in the identification of factors. Twenty-four factors were found to be significant in terms of differences in rank central tendencies between the perception of children in the primary grades and that of children in the intermediate grades. These perceptual differences were used by the research team to develop instrumentation for the final phase of the research study.

---

[3] William H. Ittelson and Hadley Cantril, Perception A Transactional Approach (Garden City, New York: Doubleday and Company, 1954), p. 2.

[4] Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill, 1956), p. 330.

The design of the final phase of the study was descriptive in nature. The research team collected data via a questionnaire based upon significant perceptional differences found in the second pilot study which indicates pertinent perceptions of parents and teachers. The questionnaire used in the final phase of the study was designed to provide insight relative to parents' and teachers' perceived value of education-related activities in which intermediate children maintain a significantly greater negative attitude than is held by primary age children.

Secondly, the questionnaire was designed to provide parents' and teachers' perceptions concerning the impact of parent and teacher roles upon the development of children's attitudes which become significantly more negative as children proceed through their formal educational experiences.

The participants of the final phase of the study included 15 teachers and 171 parents. The data collected were analyzed using the Mann-Whitney Z statistic.

Major Findings

Unknown one. Using the interview technique, it was found that at least forty specific educational activities were perceived by children to exist commonly in grades one through six.

Unknown two. Of the forty common educational experiences identified, twenty-four were found to be perceived significantly more negatively by intermediate grade children than by primary grade children.

Unknown three. Of the twenty-four educational experiences perceived significantly more negatively by intermediate grade children than by primary grade children, four were found to be perceived significantly more important by teachers than by parents. These four educational activities include: (1) reading orally in class; (2) doing rhythm activities in the gym; (3) writing on the chalkboard; and (4) talking with friends at school.

Unknown four. Of the twenty-four educational experiences perceived significantly more negatively by intermediate grade children than by primary grade children, no significant differences were found relative to expressed viewpoints of parents and teachers regarding the extent that teachers are perceived to influence pupil attitude formulation toward the educational experiences.

Unknown five. Of the twenty-four educational experiences perceived significantly more negatively by intermediate grade children than by primary grade children, no significant differences were found relative to expressed viewpoints of parent and teachers regarding the extent that teachers are perceived to influence pupil attitude formulation toward the educational experience.

Conclusions

Several limitations of this study are readily apparent. First, it was limited in scope to a particular population. The collection of data from a population encompassed by a specific elementary school attendance district precludes the projection of findings to other geographical areas.

Secondly, the crude nature of the instruments employed in the collection of data limit the extent that generalization and conclusions can be drawn from the analysis. Even with these strong limitations the following conclusions seemed apparent from the findings drawn from the analysis:

1. Common behavioral educational experiences are involved in the teaching-learning process in all grades one through six.
2. Intermediate grade pupils tend to perceive activities associated with their learning experiences more negatively than do primary grade children.

3. Parents tend to perceive children reading orally in class as not being as important as teachers maintain.

4. Parents tend to perceive children doing rhythm activities as not being as important as teachers maintain.

5. Parents tend to perceive children writing on the chalkboard as not being as important as teachers maintain.

6. Parents tend to perceive children talking with friends at school as not being as important as teachers maintain.

7. Parents and teachers tend to agree in their perception of the influence parents play on the formulation of pupil attitudes toward educational experiences which become more negative as children proceed through school.

8. Parents and teachers tend to agree in their perception of the influence teachers play on the formulation of pupil attitudes toward educational experiences which become more negative as children proceed through school.

Concluding Comments

If it has done nothing else, this study has underlined once again the conclusions of several previous studies. The formulation of attitudes is a complex phenomenon composed of and influenced by a variety of factors. Parents and teachers perplexed with the apparent development of negative pupil attitude toward educational experiences must strive collectively to gain a better understanding of the behavioral sciences. This knowledge is just as important for concerned adults as knowing other factors of child growth and development.

Apparently both teachers and parents are partly responsible for the development of both negative and positive pupil attitude toward school. It was quite surprising to find so much agreement between parents and teachers of the Thornton Elementary School concerning the influence their and each other's roles play upon the formulation of negative pupil attitude. One might expect each group to blame the other in such matters. It is certainly a credit to the Thornton School community that this is not the case. The agreement between parents and teachers concerning the impact of their roles provides a sound base for further study which could result only in better educational opportunities for the children of Thornton School.

ERRATA: The dissertation "Distributional, Morphological, and Life History Comparison of Salamanders of the Plethodon Jordani Complex" in the May supplemental issue was listed under Masters' Theses; it should have been listed under abstracts of Ph.D. Dissertations. Sorry.

ANSWERS TO POSTTEST

Your categorization of the given reference material should correspond with the listing below:

1. Teacher characteristics as they relate to student attitudes

   Snyder, [illegible], & Sibrel, F. The Thornton Elementary School Project -- An investigation of pupil attitude toward school and perceived influence of parental and teacher roles. Contemporary Education, 1971, 42(4), 164-168.

2. Teacher characteristics as they relate to student achievement

   Baker, K. D., & Snow, R. E. Teacher differences as reflected in student aptitude-achievement relationships. Contract No. OEC-6-10-078, Palo Alto, California: Stanford Center for Research and Development in Teaching, 1972. (ERIC ED 062 311.)

   Goldsmith, C. H. An investigation of the relationship between selected teacher characteristics and the effectiveness of teachers of culturally disadvantaged and non-disadvantaged elementary school students. Dissertation Abstracts International, 1971, 32(2), 819-A.

   Kohn, P. M. Relationships between expectations of teachers and performance of students. The Journal of School Health, 1973, 43(8), 498-503.

POSTTEST OVER ENTIRE MODULE

As your posttest, you will use all of the skills you have learned in the module to complete the terminal objective.

TERMINAL OBJECTIVE:

THE PARTICIPANT WILL BE ABLE TO COMPLETE A SEARCH FOR REFERENCES RELATED TO A GIVEN TOPIC AND ORGANIZE THE REFERENCES ACCORDING TO THE STATED CRITERIA.

Before taking the POSTTEST, read the summary on the next two pages in order to review the entire process outlined in the module.

Summary of the Search and Analysis Process

Library research can be broken into the following stages: information retrieval, organization and conceptualization. Each stage of the research process can be divided into a series of task-specific, time-efficient stages which are summarized below.

The first stage in the information retrieval process consists of a search for general information in the area. Only after the researcher has become generally familiar with the area can s/he begin an extensive, detailed search of the literature. A few key reference sources should provide enough information to acquaint the researcher with the possible range of the topic and definitions of the variables under investigation. Such general reference sources may include encyclopedias in relevant fields and annual reviews of the literature. Based on this initial cursory search, the researcher defines the criteria for acceptable information and/or writes a general outline. Of course, the criteria and outline are not static; as the research progresses, the criteria and outline may be expanded. The criteria and/or outline can be used as an aid in identifying descriptors to search indexes, as guidelines for selecting materials, and as a means to organize both the search and the finally selected documents (as described below).

The searching activity itself consists of locating information (articles, abstracts, books, government reports, etc.) which fall within the specifically defined information areas established by the criteria or the outline. Information is selected from the following sources: indexes (either hand searched or searched by computer); key journals; bibliographies and reference lists; books and handbooks in the area; and, works of key authors. Unavailable sources should be solicited by letter or obtained through interlibrary loan procedures.

As references are selected, they are xeroxed and a notation is made on the first page indicating the criteria category or section of the outline to which the reference most applies. All reference information needed to write the notecards is also noted on the first page.

The next stage of the research process consists of physically processing and organizing the collected information. Reference cards must be written in the correct style, and references may be duplicated. If references are duplicated, one copy of the reference is placed in a permanent file (alphabetically), and one copy is classified (as explained below). An alphabetical card catalog should also be compiled. The card catalog is a helpful aid in typing the final bibliography and reference list of any writing effort. Since the cards are already written in the correct form and alphabetically arranged, a typist can compile a reference list in the order and form in which the references appear. Copies of the cards are attached to the actual references, so that the reference information is readily available during the writing task.

Finally, the information must be placed within a conceptual framework to prepare the material for the writing task. Key passages may be underlined or references abstracted. Such passages or abstracts should be accompanied by marginal notations indicating the author's name, year of publication, the page number of the statement, first words of the title, and section of the outline or criteria category to which the statement applies. Passages from the article or abstract can then be cut out and inserted under the appropriate part of the outline or criteria category. In such a way, an outline (or the categories) emerges which consists of the skeletal outline (or categories) filled in with relevant prose passages from the selected references or abstracts. The rough draft of the literature review is now nearly written.

POSTTEST

Conduct a search of ERIC RIE, ERIC CIJE, and Psychological Abstracts (January 1969 - December 1973) for references which focus on peer ratings by children in elementary school (include methodology, validity, reliability of peer ratings). Relevant references should focus specifically on peer rating in elementary settings. In conducting the search, complete the following tasks:

1. Preliminary reading in the area (find a few key references to read through in order to familiarize yourself with the area);
2. Use the five major headings in the outline on the next page to organize your search and categorize the reference materials as you locate them;
3. Make a listing of descriptors for each index;
4. Search the indexes;
5. Xerox relevant reference materials;
6. Label the materials according to categories as you select and xerox references;
7. Search the card catalog for relevant books;
8. Process the references (cutting, pasting, writing notecards, etc.);
9. Put together your final product:
    a. Alphabetical listings of references by category (in APA form);
    b. Originals in labelled folders (alphatetical within each folder) by category;
    c. Copies in labelled folders (alphabetical within each folder) by category.

If you have particular questions or problems in conducting this search, refer back to the appropriate sections of this module for specific instructions.

CATEGORIES FOR PEER RATINGS SEARCH

I. Different Theoretical Approaches to Peer Ratings

refers to general frameworks -- e.g., self-others, economic, etc.

II. Peer Ratings as a Methodological Technique

the focus should be specifically on technique rather than general frameworks

III. Peer Ratings in Experimental Settings

experimental vs. control groups, or several groups receiving experimental treatment without a control group

IV. Reliability and Validity of Peer Ratings

reliability -- the stability of the measure. Are the results of the measure still true at a later date? Longitudinal studies would be included here.
validity -- how do peer ratings compare with other ratings? How accurate are peer ratings?

V. Peer Ratings Used Alone as a Measuring Technique

kids measuring kids with no extraneous variables added to the situation

A. Peer ratings which focus on personality structure and socialization

B. Peer ratings which focus on competence

    1. physical
    2. intellectual
    3. creative

VI. Peer Ratings Used as One of Several Behavioral-Social Measures

peer ratings as a part of a series of other tests with no comparison implied

A. Peer ratings which focus on personality structure and socialization

B. Peer ratings which focus on competence

    1. physical
    2. intellectual
    3. creative

ANSWERS TO POSTTEST

Your categories and reference listing should correspond with the model provided below. In order to pass the posttest, you may have up to ten additional references, you may be missing no more than nine references, and you may have misplaced no more than three references. The references should be cited in the form shown below. Cards should be clipped to the first page of the copy of the reference. Xeroxed copies of cards should be clipped in with the cut and pasted original reference (see section). Finally, you should have used the underlined descriptors cited below in addition to no more than five other descriptors.

Reference List

Part I. Different Theoretical Approaches to Peer Ratings

Scarlett, H. H., Press, A. N., & Crockett, W. H. Children's descriptions of peers: A Wernerian developmental analysis. *Child Development*, 1971, *42*(2), 439-453.

Smith, G. M. Usefulness of peer ratings of personality in educational research. *Educational and Psychological Measurement*, 1967, *27*, 967-984.

Part II. Peer Ratings as a Methodological Technique

Kaufman, G. G. An examination of the nomination paradigm of peer ratings. *Dissertation Abstracts International*, 1972, *33*(5), 2386-2387B.

Lindzey, G., & Aronson, E. (Ed.). *The handbook of social psychology*. Vol. 2. (2nd ed.). Reading, Massachusetts: Addison-Wesley Publishing Co., 1968.

Lister, J. L. Personal-emotional-social skills. In R. M. Smith (Ed.), *Teacher diagnosis of educational difficulties*. Columbus, Ohio: Charles E. Merrill, 1969. 202-203.

Maccoby, E. E., & Maccoby, N. The interview: A tool of social science. In G. Lindzey (Ed.), *The handbook of social psychology*. Vol. 1. *Theory and method*. Cambridge, Massachusetts: Addison-Wesley Publishing Co., 1954. 453, 455-456.

Miller, D. R. Motivation and effect. In P. H. Mussen (Ed.), *Handbook of research methods in child development*. New York: John Wiley & Sons, 1960. 753-754.

Mussen, P. H. (Ed.). *Handbook of research methods in child development*. New York: John Wiley & Sons, 1960.

Passini, F. T., & Norman, W. T. Ratee relevance in peer nominations. *Journal of Applied Psychology*, 1969, *53*(3), 185-187.

Peper, J. B., & Chansky, N. M. Development of a scaling technique for sociometric data. Paper presented at the annual meeting of the American Educational Research Association, New York, N. Y., February 1971. (ERIC ED 046 338.)

Smith, R. M. (Ed.). *Teacher diagnosis of educational difficulties*. Columbus, Ohio: Charles E. Merrill, 1969. 202-203.

Part III. Peer Ratings in Experimental Settings

Koslin, S. C., Amarel, M., & Ames, N. The effect of race on peer evaluation and preference in primary grade children: An exploratory study. *Journal of Negro Education*, 1970, *39*(4), 346-350.

Lamm, H., Trommsdorff, G., & Rostschaude, E. Self-image, perception of peers' risk acceptance and risky shift. *European Journal of Social Psychology*, 1972, *2*(3), 255-272.

Minturn, L., & Lewis, M. Age differences in peer rating of socially desirable and socially undesirable behavior. *Psychological Reports*, 1968, *23*(3, Part 1), 783-791.

Morris, B. B. Cross-validation of the Gordon SIV. *Perceptual and Motor Skills*, 1968, *27*(1), 44-46.

Pollis, N. P., & Doyle, D. C. Sex role, status and perceived competence among first graders. *Perceptual and Motor Skills*, 1972, *34*(1), 235-238.

Powell, E. R., & White, W. F. Peer concept ratings in rural children. *Psychological Reports*, 1969, *24*, 461-462.

Rychlak, J. F. Personality factors in self- and peer-evaluations of WISC performance intelligence among middle-class children. *Journal of Special Education*, 1970, *4*(3), 269-277.

White, W. F., & Richmond, B. O. Perception of self and of peers by economically deprived black and advantaged white fifth graders. *Perceptual and Motor Skills*, 1970, *30*(2), 533-534.

Yarrow, M. R., & Campbell, J. D. Person perception in children. *Merrill-Palmer Quarterly of Behavior and Development*, 1963, *9*(1), 57-72.

Part IV. Reliability and Validity of Peer Ratings

Fiske, D. W., & Cox, V. A. The consistency of ratings by peers. *Journal of Applied Psychology*, 1960, *44*(1), 11-17.

Fixsen, D. L., Phillips, E. L., & Wolf, M. M. Achievement place: The reliability of self-reporting and peer-reporting and their effects on behavior. *Journal of Applied Behavior Analysis*, 1972, *5*(1), 19-30.

Gibson, H. B., & Hanson, R. Peer ratings as predictors of school behavior and delinquency. *British Journal of Social and Clinical Psychology*, 1969, *8*(4), 313-322.

Gordon, L. V. Estimating the reliability of peer ratings. *Educational and Psychological Measurement*, 1969, *29*(2), 305-313.

Hamilton, D. L. The structure of personality judgements: Comments on Kuusinens paper and further evidence. *Scandinavian Journal of Psychology*, 1970, *2*(4), 261-265.

Hezns, R. W., & Lippitt, R. Systematic observational techniques. In G. Lindzey (Ed.), *The handbook of social psychology*. Vol. 1. *Theory and Method*. Cambridge, Massachusetts: Addison-Wesley Publishing Co., 1954. 397.

Hoffman, L. W., & Hoffman, M. L. *Review of child development research*. Vol. 2. New York: Russell Sage Foundation, 1966.

Prien, E. P., & Woodley, K. Note on reliability of peer ratings of classroom performance. *Psychological Reports*, 1971, *28*(1), 89-90.

Trichett, H. V. Stability and predictability of children's self-concept and perceptions by others: A developmental study. *Dissertation Abstracts International*, 1969, *29*(8), 2577A.

Part V. Peer Ratings Used Alone vs. a Measuring Technique

Herrmann, R. W. Classroom status and teacher approval and disapproval -- Study of children's perceptions. *Journal of Experimental Education*, 1972, *41*(2), 32-39.

Lazar, E. Children's perception of other children's fears. *The Journal of Genetic Psychology*, 1969, *114*(1), 3-11.

Moore, G. C., & Falls, H. B. Functional classification for physical education in the upper elementary grades by peer assessment. *Research Quarterly*, 1970, *41*(4), 519-522.

Roodin, P. A. Birth order and cooperativeness: Peer ratings. *Psychological Reports*, 1971, *29*(2), 590.

Part VI. Peer Ratings Used as One of Several Behavioral-Social Measures

Eisenman, R., & Robinson, N. Peer-, self-, and test-ratings of creativity. *Psychologycal Reports*, 1968, *23*(2), 471-474.

Felker, D. W. The relationship between anxiety, self-ratings and ratings by others in fifth-grade children. *The Journal of Genetic Psychology*, 1969, *115*(1), 81-86.

Shea, B. J. Help-seeking behavior as a function of peer-rated aggression, age of subjects, and conditions of help. *Dissertation Abstracts International*, 1971, *31*(9), 5641-5642B.

Werdelin, I. A study of the relationship between teacher ratings, peer ratings, and self ratings of behavior in school. *Scandinavian Journal of Educational Research*, 1969, *13*, 147-149.

Descriptors:

ERIC RIE AND CIJE

sociometric techniques

peer groups

peer relationships

interpersonal relationship

group relations

group dynamics

social relations

problem children

behavior problems

behavior rating scales

intergroup relations

peer acceptance

personality assessment

student evaluation

rating scales

PSYCHOLOGICAL ABSTRACTS

peers

peer relations (when listed as a descriptor)

rating scale

rating

The authors of this module would appreciate any comments or suggestions you may have with respect to sections of this module. Please send any suggestions to the following address:

Brad Manning or Donna Buntain
Research and Development Center for Teacher Education
The University of Texas
Austin, Texas 78712